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PHOTOGRAPHIC
MEASURES OF DOUBLE STARS

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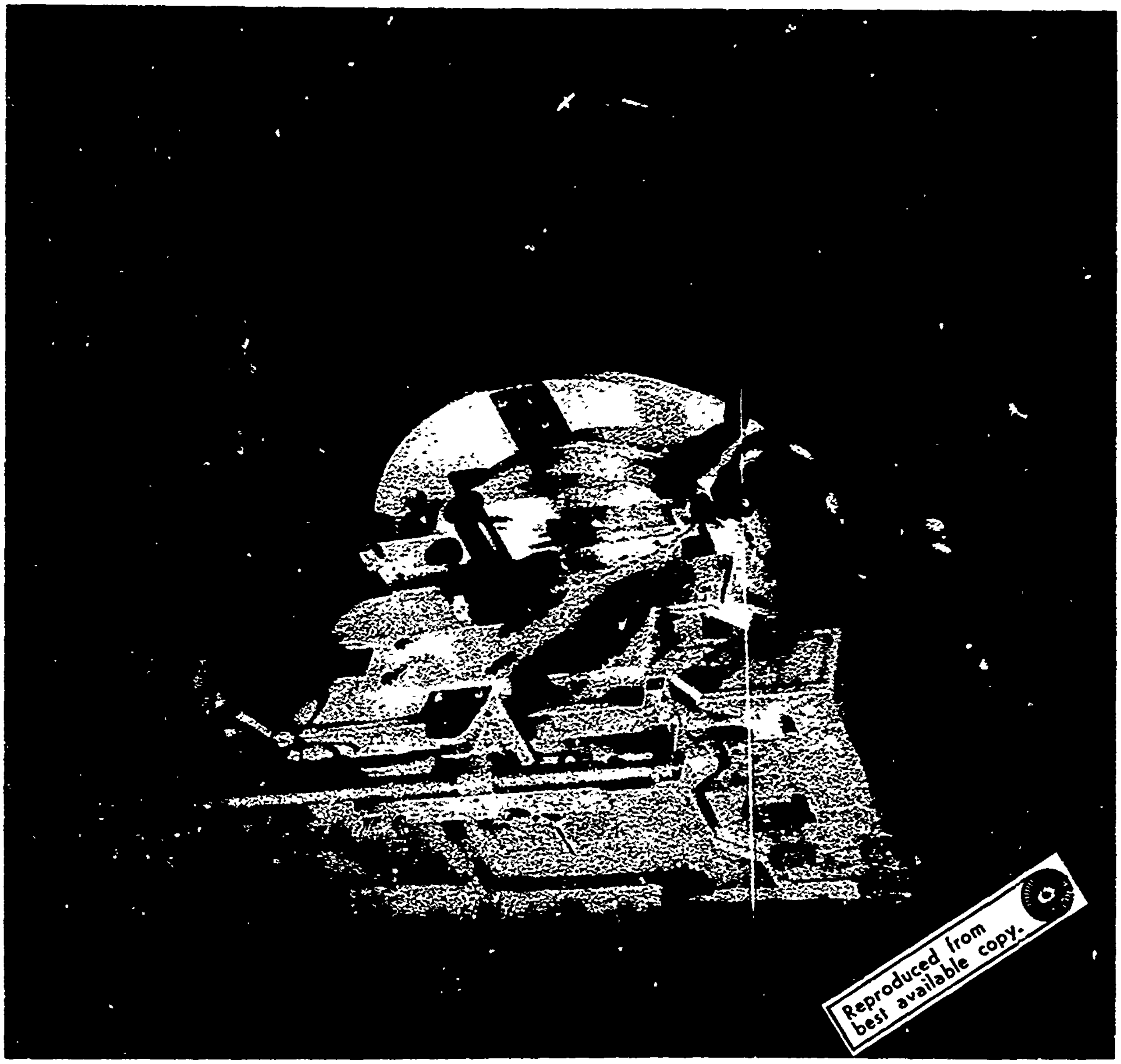

Figure 1. The Dc ⁻ star Camera Attached to the Dearborn Refractor.

INTRODUCTION

The photographic observations of double stars included in the present paper were made between October, 1946 and July, 1952, and are a continuation of the observations previously published by the writer.[1] The present series of plates was taken with the Dearborn, Sproul and Yerkes refractors, and the method used in taking and measuring the plates is essentially the one first employed by Hertzsprung,[2] which reduces to a minimum possible systematic and accidental errors.

Nearly all the observed stars are Struve double stars with separations larger than 2". Special emphasis was given to pairs where continuous series would lead to important improvements of their orbits and to pairs with large parallaxes. Other pairs were included on the basis of obtaining an accurate relative position, which, compared with earlier photographic observations of high accuracy or with future observations of the same kind, would help in checking on the physical character of their motion. For most of the pairs in the last group an accurate photographic position at intervals of 10 to 20 years is sufficient.

INSTRUMENTATION FOR THE DEARBORN PLATES

The Dearborn refractor. The high optical qualities of the Dearborn refractor are well known from the fact that the companion of Sirius was discovered by Alvan Clark when he made the initial test of the telescope. The many difficult double stars discovered and measured by Burnham and Hough are further evidence of this fact. It was for this reason that it was decided to use the telescope for photographic measures of double stars, even though the focal length was somewhat shorter than usually used for this type of work.

A study of the optical system of the Dearborn refractor was first made by Fox.[3] From the data derived from the Hartmann test the following least squares solution is obtained of the Hartmann formula:

$$R = 1.711 + 7.416\,(a - 2.906)^2\,, \qquad (1)$$

where $a = (\lambda - .2)^{-1}$, with λ expressed in microns, and R is the focal reading in mm measured from an arbitrary zero point. The reading for the minimum focal length is obtained for a = 2.906 corresponding to a wavelength of λ5441A.

The Hartmann formula can also be written in the following form:

$$\frac{f - f_{min}}{f_{min}} = .0011\left(\frac{1}{\lambda - .2} - 2.91\right)^2. \qquad (2)$$

The coefficient .0011 is a measure of the extension of the secondary spectrum and compares favorably with the value .0012 obtained for the Sproul and Yerkes telescopes.[4,5] The coefficient is the ratio between the factor 7.416 in equation (1) divided

1. A.J. 52, 1, 1946.
2. Publ. Astroph. Obs. Potsdam 24, No. 75, 1920.
3. Annals of the Dearborn Observatory, 1, 13, 1915.
4. A.J. 52, 1, 1946.
5. B.A.N. 9, 223, 1941.

by the focal length of the telescope (7050 mm).

Effective wavelengths. The photographs are confined to a narrow part of the prismatic spectrum in order to reduce to a minimum the effects of dispersion caused by the atmosphere and the objective gratings. This was accomplished by using a Wratten light filter No. 12 (Minus Blue) in combination with Kodak Spectroscopic Plates of Class G. The filter absorbs all light of wavelength below λ5000A, while the photographic plates of Class G have a strong sensitivity throughout the blue and green with a maximum at λ5650A, after which the sensitivity falls off sharply. An investigation of the correlation between effective wavelengths and spectral types showed an increase of 45 Angström units from a star with spectral type A0 (λ5445A) to a star with a spectral type M0 (λ5490A). This increase corresponds to a difference of $0''.020$ in the refraction constant. For this reason the effect of atmospheric dispersion is sufficiently small to be entirely neglected.

Objective gratings. In Table A are given the data for the four objective gratings used for the compensation of magnitude differences between the components of double stars. Gratings Nos. 1, 3 and 4 have aluminum rods, while brass rods were used for grating No. 2. The rods are mounted on 4-inch wide annular frames, with inner diameter of 19 inches, and cut out of aluminum sheets 1/8 inch thick.

Table A. Dearborn Objective Gratings.

Grating No.	1	2	3	4
Width of bar	7.937 mm	5.159 mm	3.175 mm	2.381 mm
Width of spacing	7.937 mm	10.715 mm	12.700 mm	13.494 mm
Extinction of central image	1.50 mag.	.85 mag.	.48 mag.	.35 mag.
Magnitude difference:				
1st order spectrum-central image	.98 mag.	1.97 mag.	3.15 mag.	3.85 mag.
2nd order spectrum-central image	---	3.39 mag.	3.62 mag.	4.10 mag.
3rd order spectrum-central image	3.37 mag.	9.55 mag.	4.50 mag.	4.54 mag.
Distance:				
1st order spectrum-central image	.242 mm	.242 mm	.242 mm	.242 mm
1st order spectrum-central image	$7''.08$	$7''.08$	$7''.08$	$7''.08$

Camera equipment. The original camera used for the double star work was a simple double slide camera with a manually operated shutter and with provisions for manually moving the carriage holding the plate-holder in steps of 2mm in the direction of right ascension. This arrangement made it possible to obtain a series of 35 exposures in quick succession near the optical axis of the telescope. Upon completion of a series of exposures, the plate-holder was shifted 10 mm in declination and after the plate-holder had been shifted to its original position in the x-coordinate a second row followed. Upon completion of the second row the plate-holder was shifted 10 mm in declination, and the shutter was left open while the double star itself or a neighboring bright star was used to impress a trail across the plate, giving the orientation of the equator of the date.

The manually operated equipment was replaced in 1951 with a unit allowing for multiple exposures with automatic timing and plate transport. The unit has a movable plate carriage which fits into the position of the plate-holder of the ordinary double slide camera, thus allowing guiding during the exposure. The sequence of exposures starts with an exposure of chosen length which can be varied from 1/2 second to 2 minutes. After completion of the exposure the shutter is released and the plate-holder is moved automatically 1/10 inch to the next position by means of a turning screw. When reaching this position the plate-holder stops and the next exposure starts

immediately. This procedure is continued until a row of thirty-five images has been obtained and the circuit is instantly cut off by means of a microswitch.

Upon completion of two rows of exposures a trail is exposed on the plate for orientation. For this purpose the camera shutter is mounted on a manually operated slide which can be removed from the field of the plate.

The timing circuit providing the necessary signals for operation of the plate-holder, the camera shutter, and the timing of the exposures in the proper sequence of operation, is a modification of the simple cathode coupled one-kick multivibrator. The circuit provides considerable flexibility and accuracy and was designed by Dr. A. D. Code.

The camera shutter used in the equipment is a Wollensak shutter No. 2, which has an opening of 1 inch.

The new equipment has increased considerably the quality of the images because the manual operation of the previous equipment made it difficult to avoid vibrations in the telescope, while the new equipment leaves the telescope undisturbed during the taking of the plate. (See p. 8)

The photographic plates. On the Kodak Spectroscopic Plate 103aG a 9.2 magnitude star is obtained in 5 seconds with the Dearborn refractor, while the 103G, IIG, IIIG, and IVG emulsions give respectively 8.6, 8.2, 6.8, and 5.5 magnitudes in the same period. This range in emulsion speeds makes it possible to select an emulsion for each object so that the exposure times can be kept between 2 and 15 seconds of time.

The scale of the Dearborn plates. The scale values have been obtained from distances between members of the Pleiades using the data published by Hayn.[1]

The mean value is 1 revolution = $29''\!.2661 \pm 0''\!.0010$ (m.e.) on the Dearborn Gaertner machine with designation h for a plate taken at a temperature of 50° Fahrenheit and with a focal reading of 17 for the refractor. The scale value includes the factor $n = 1 + \beta$, the mean refractive index for the air at the Dearborn Observatory, which equals 1.00028 for the scale reduction by refraction in the zenith for the latitude and altitude (175 meters) of the Observatory, and a temperature of 40° Fahrenheit.[2]

The remaining part of the differential refraction is usually small and is accounted for by the formulae:

$$\Delta x = Ax + (B + C)y$$

$$\Delta y = Dy$$

where

$$A = \beta' k_1^2 \qquad k_1 = \tan t \sin N \csc (N + \delta)$$

$$B + C = 2\beta' k_1 k_2 \qquad k_2 = \cot (N + \delta)$$

$$D = \beta' k_2^2 \qquad \tan N = \cot \phi \cos t.$$

In these formulae ϕ is the latitude of the Observatory, δ the declination of the star, t the hour angle, and $\beta' = 29''\!.258\ \beta$.

The formulae above take into account the effect of refraction upon the star trail used for orientation, which gives the observed trail an inclination C relative to a trail not affected by refraction. The formulae are based upon those developed by König,[3] and become very simple because second order terms of x and y as well as products and second order terms of A, B, C and D can be neglected for approximately all hour angles up to 3 hours for stars between -10° and $+75^{\circ}$ declination, and for all hour

1. Die Pleiaden, Abh. Math. -Phys. Kl., Sächsischen Akad. d. Wis. 38, 6, 54, 1921.
2. Connaissance Des Temps, 1954, 528-529 and 633, 1953.
3. Handbuch d. Astrophysik, Bd. 1, 529, 1933.

angles within 1 hour for stars between -20° and +80° declination, at an observing station with the latitude of the Dearborn Observatory.

Formulae for the same corrections have been published by Hertzsprung.[1] A simple transformation of his formulae, which express the corrections of the rectangular coordinates as functions of both rectangular and polar coordinates, leads to identical expressions for the corrections as derived above.

Tables for the values of A, B, C and D were computed with entries for hour angle and declination, so that the measured values of x and y in millimeters multiplied by the tabulated values give the refraction in excess of the zenith refraction in units of $0''0001$.

A series of plates was taken during periods of good seeing to check on the dependence of focal reading upon temperature. These tests showed that the focal reading changed by only 0.2 mm for the extreme range of temperatures, while the Rayleigh criterion establishes a depth of the focus equal to 0.5 mm for the visual refractor with focal ratio of 15 as in the case of the Dearborn refractor. For this reason the focal reading was not changed between the warm and cold seasons.

The correction of the scale value with temperature is $0''0002$/mm for each 3 degrees of Fahrenheit, being $+0''0033$ at 0° F and $-0''0033$ mm at 100° F.

<u>Measuring machines</u>. Three different measuring machines, designated g, h and i, were used in measuring the plates. All three were Gaertner machines. Machines g at the Yerkes Observatory and h at the Dearborn Observatory, are the conventional type with a screw of 200 mm length, while the third machine has a 120 mm screw and a movable plate carriage. Machine g was used with a projection of the image, while the other two were used with a regular microscope.

The scales for each of the three machines for a plate taken at +50° F and for the basic focal reading of +17.0 are as follows:

g: 1mm = $29''2568$; h: 1mm = $29''2641$; i: 1mm = $29''2661$.

All machines have been examined for progressive and periodic errors which were found to be negligible for the purpose of the present investigation.

INSTRUMENTATION FOR THE SPROUL PLATES

No changes were made in the instrumentation used in obtaining the Sproul plates since it was described in the Astronomical Journal, Vol. 52, pp. 1-5, 1946, except that the objective was removed from its old cell and installed in a new one in the spring of 1949. Aside from a slight change in the focal reading no other changes have been discovered.

The Sproul plates were taken usually during the summer months with the permission of Dr. P. van de Kamp. The primary reason for continuing the previous Sproul program was to check on possible systematic effects between the results obtained from the Sproul and the Dearborn telescopes, but as of this date no systematic differences have been discovered.

A few of the early Sproul plates were measured on the measuring machines at the Sproul Observatory, which carry the designations e and f, while the remaining plates were measured on the machines g, h and i.

The scale of the Sproul plates for a focal reading of 0 and a temperature of 50° F is: 1mm = $18''8733$ (measuring machine e).

1. B.A.N. <u>IX</u>, 116, 1940.

INSTRUMENTATION FOR THE YERKES PLATES

The Yerkes refractor. The Hartmann formula for the Yerkes refractor has been described by Wesselink,[1] who found that the wavelength for the minimum focal length was λ5540A.

Effective wavelengths. A Wratten light filter No. 12 (Minus Blue) was used in combination with the Kodak Spectroscopic Plates of Class G. From a series of plates the same dependence between the spectral type and effective wavelength was found as for the Dearborn plates, the effective wavelengths being λ5470A for a star of spectral type A0 and λ5550A for a star of spectral type K0. This increase in effective wavelength is about twice as large as found for the Dearborn and Sproul plates, but since none of the pairs on the Yerkes program differ by more than a spectral class between the components, this is of no consequence.

Most of the Yerkes plates were taken with an aperture of 24 inches except for the very bright pairs, where an aperture of 15 inches was used. The smaller apertures improved considerably the appearance of the images.

Objective gratings. In Table B are given the data for the four objective gratings used for the compensation of the magnitude differences between the components. The bars for gratings Nos. 1 and 2 have aluminum tubing, while those for gratings Nos. 3 and 4 are aluminum rods. The annular rings on which the bars are mounted are made of 1/4-inch aluminum (24ST) and have inner and outer diameters of 40 and 52 inches respectively for grating No. 4 and the adapter ring for the other gratings, while the annular rings for the remaining gratings have inner and outer diameters of 24 and 32 inches. The adapter ring as well as grating No. 4 are held in position by 3 flanged wheels. This arrangement allows the grating to revolve by means of a motor controlled from the eye end of the telescope.

Table B. Yerkes Objective Gratings.

Grating No.	1	2	3	4
Width of bar	12.700 mm	7.937 mm	5.556 mm	3.175 mm
Width of spacing	12.700 mm	16.650 mm	20.371 mm	18.440 mm
Extinction of central image	1.50 mag.	.85 mag.	.52 mag.	.34 mag.
Magnitude differences:				
1st order spectrum-central image	.98 mag.	2.00 mag.	2.99 mag.	3.90 mag.
2nd order spectrum-central image	---	3.38 mag.	3.52 mag.	4.14 mag.
3rd order spectrum-central image	3.37 mag.	9.04 mag.	4.58 mag.	4.56 mag.
Distance:				
1st order spectrum-central image	.420 mm	.433 mm	.410 mm	.493 mm
1st order spectrum-central image	4"47	4"61	4"37	5"25

Camera equipment. Prior to March 30, 1950, the plates were taken with a simple double slide camera with manual operation of plate carriage and shutter. After that date a camera attachment identical with the unit used at the Dearborn Observatory was put into operation. The unit fits in the same position as the plate-holder for the parallax camera, making the switch from one program to the other very simple.

As in the case of the Dearborn plates, the new equipment increased considerably the average quality of the plates.

1. B.A.N. IX, 223, 1941.

The photographic plates. Kodak Spectroscopic Plates of Class G were used throughout the series.

The scale of the Yerkes plates. The scale values have been obtained from distances between members o the Pleiades using the data published by Hayn.[1] The scales for each of the three machines for a plate taken at 10° C and the basic focal reading of 69.0 are as follows:

g: 1mm = 10".6527; h: 1mm = 10".6554; i: 1mm = 10".6561.

Each of these values includes the factor $n = 1 + \beta$, the mean refractive index for air at the Yerkes Observatory (altitude 213 meters) and equals 1.00028 for a temperature of +5° C.[2]

The remaining part of the differential refraction was derived from tables similar to those used at the Dearborn Observatory. (See p. 3).

The Yerkes refractor shows a distinct relationship between focal reading and temperature. The focal length of the objective increases by 0.43 mm pr. centigrade while the length of the tube increases 0.23 mm pr. centigrade, the total effect being an increase in focal length of 0.20 mm pr. centigrade.

The correction of scale for temperatures is ".00004 for each centigrade, being +".0010 at -15° C and +".0010 at +35° C

THE ERRORS IN THE PHOTOGRAPHIC MEASURES OF DOUBLE STARS.

The mean error of the result for a single image measured with the film either towards or away from the microscope has been derived in the conventional way from the internal agreement of the measures on the plate and is given separately for the $\Delta\alpha\cos\delta$ and $\Delta\delta$ coordinates of each plate in the tabulated measures (Table I).

The internal mean error, ϵ_i, of the mean value of all exposures for each coordinate was derived by dividing the above value for the mean error of a single image by the square-root of the average number of measured images in the two positions of the plate. The improvement by double measurement was therefore neglected in order to compensate in part for systematic errors inherent in the measurements, thus following the same procedure first outlined by Hertzsprung.[3] A rigorous reduction of the internal mean error, ϵ_i, depends upon the accuracy gained by measuring each coordinate twice. This has been investigated by Hertzsprung[4] who showed that half the square of the mean error of a single setting is due to intrinsic errors in the image while the other half comes from the accidental error of bisection. Accordingly, for measurements made with both the film towards and away from the microscope, the weight of the means of these two measures is 4/3 times the weight obtained for a single image.

The actual, or external, mean error, ϵ_e, for the individual plates, can be obtained from the residuals of the single plates from the yearly means obtained from several plates, allowing for the orbital motion in case of rapid orbital motion within one opposition. To obtain a reliable value for this error it is necessary to have a large number of plates enter into the discussion.

For the relationship between ϵ_i and ϵ_e the following equation can be adopted:

$$3/4\epsilon_i^2 + \epsilon_p^2 + \epsilon_m^2 = \epsilon_e^2.$$

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1. Die Pleiaden, Abh. Math.-Phys. Kl., Sächsischen Akad. d. Wis. 38, 6, 54, 1921.
2. Connaissance des Temps, 1954. 528-529 and 633, 1953.
3. Publ. Astroph. Obs. Potsdam 24, No. 75, 1920.
4. Ibid.

In this equation ϵ_p has been defined as the plate error because it is common to all images on the same plate, while ϵ_m is the personal error of measurement dependant upon the individual measurer's systematic and accidental errors of measurement.

The square of ϵ_p can be considered equal to the sum of the squares of several errors which systematically affect all images on one plate, but accidental in the sense that it varies from plate to plate. Although not readily defined, ϵ_p has components arising from distortions in the film of the plate, inaccuracies in the orientation obtained from the trail, and abnormal refractive properties of the atmosphere. The median personal error, ϵ_m, has been investigated by Hertzsprung[1] from the measures made by 45 different persons of a plate of the double star Antares. The measures give a median personal error of $0''.008$ in each coordinate.

Adopting this value for ϵ_m, the above equation allows us to determine ϵ_p when ϵ_i and ϵ_e are known. The results are given in Table C for the Dearborn plates, dividing the measures of each coordinate into two groups according to the size of the internal mean errors. The few measures with ϵ_i larger than $0''.020$ were excluded from the investigation, and also those plates where the yearly mean was derived from less than three plates.

Table C.

$\Delta\alpha\cos\delta$	ϵ_i	ϵ_e	ϵ_p	ϵ_m	No. of Plates
$0''.0046 \leq \epsilon_i \leq 0''.0100$	$0''.0077$	$0''.0137$	$0''.0090$	$0''.0080$	165
$.0101 \leq \epsilon_i \leq .0200$	.0135	.0178	.0109	.0080	220
$\Delta\delta$					
$.0040 \leq \epsilon_i \leq .0100$	.0076	.0144	.0099	.0080	197
$.0101 \leq \epsilon_i \leq .0200$	.0135	.0175	.0109	.0080	191

ϵ_p appears from this investigation to be very nearly the same for both coordinates and for both groups of measures within each coordinate. The average value of $\pm 0''.010$ compares with the value of $\pm 0''.006$ found for the Sproul plates,[2] indicating that this error, expressed in millimeters, is approximately the same for both telescopes.

The Yerkes material is at the present time too limited to allow a statistical investigation of the correlation between the internal and external errors.

In forming the yearly means the internal mean errors for a plate are reduced to external errors by means of the following formula:

$$\epsilon_e^2 = 3/4\epsilon_i^2 + A \times 10^{-6}$$

where the value for A is equal to 164 for the Dearborn plates, 100 for the Sproul plates, and 64 for the Yerkes plates, all expressed in units of seconds of arc squared.

A few of the plates were measured more than once. These plates were reduced by the formula:

$$\epsilon_e^2 = \frac{2n+1}{4n}\epsilon_i^2 + B \times 10^{-6}$$

where n is the number of times a plate is measured and where the values for B expressed in units of seconds of arc squared are as follows:

Dearborn:	$132 + \frac{32}{n}$
Sproul:	$68 + \frac{32}{n}$

1. B.A.N. 9, 253, 1942.
2. A.J. 51, 4, 1946.

Yerkes: $46 + \frac{18}{n}$

These reductions take into account the reduction of the accidental errors by repeated measurements.

SUMMARY

The total weight of the results collected in the present paper as obtained from the internal mean errors of the plates is $25{,}600{,}000''^{-2}$ with approximately equal weight for each coordinate.

Altogether 709 plates were measured with a total of 733 plate measures and a total number of single settings equal to 407,235.

For a single image the median mean errors are as follows:

	$\Delta\alpha\cos\delta$		$\Delta\delta$	
Dearborn I:	$\pm''.089$ =	$\pm 3^{\mu}.0$	$\pm''.084$ =	$\pm 2^{\mu}.9$
Dearborn II:	.073	2.5	.069	2.4
Sproul:	.078	4.2	.073	3.9
Yerkes:	.050	4.7	.047	4.4

The substantial decrease in the median mean errors of Dearborn II compared with Dearborn I occurred after the introduction of the automatic camera equipment. A comparison of Dearborn II with Sproul shows that in spite of the shorter focal length of the Dearborn telescope, the median mean errors expressed in seconds of arc are smaller than those obtained with the Sproul refractor.

ACKNOWLEDGMENTS

It is a pleasure to acknowledge the support of the Research Corporation for the development and the construction of the automatic camera equipment now employed at the Dearborn and Yerkes telescopes, and the Gould fund of the National Academy of Sciences for funds to build the gratings for the Yerkes telescope. I am especially indebted to the Office of Naval Research for their support to allow the completion of the measures and their reduction.

Many persons participated in the work at the telescope and in the measurement of the plates, and I wish to express my sincere thanks to each of the participants in the program who are listed in the introduction to Table I. In particular I am indebted to Mr. H. Rymer, Dr. C. E. Gasteyer, Mr. B. Stephenson, Mrs. E. Stephenson and Mrs. E. Van Inwagen for their great share in the present work.

CONTENTS OF TABLE I

Col. 1. Plate number (D = Dearborn, S = Sproul, Y = Yerkes).
Col. 2. Abbreviated name of observer (see Col. 10).
Col. 3. Date of Observation (1900+).
Col. 4. Mean value of measured $\Delta\alpha\cos\delta$ (Equinox of date), with the internal mean error.
Col. 5. Mean value of measured $\Delta\delta$ (Equinox of date), with the internal mean error.
Col. 6. Number of images measured in each coordinate in two positions, film up and down.
Col. 7. Mean error of a single image, either film up or down, in $\Delta\alpha\cos\delta$ and $\Delta\delta$.
Col. 8. Hour angle at which plate was taken, expressed in minutes of time.
Col. 9. Effective difference in magnitude between components, either from measurements or estimates.
Col. 10. Name of Measurer, and measuring machine used:

W. R. Beardsley	Brd	T. C. Littlejohn	Ltj
L. Binnendijk	Bin	P. A. Morris	Mrs
J. J. Davis, Jr.	Dav	G. Petersen (Miss)	Pts
D. Duke	Duk	S. S. Provin	Prv
L. W. Fredrick	Frd	H. R. Rymer	Rym
C. E. Gasteyer	Gst	M. C. Rymer (Mrs.)	KRy
C. Garceau (Miss)	Grc	J. D. Schopp	Sch
R. G. Hall, Jr.	Hll	R. A. Spong	Spo
H. L. Helfer	Hlf	C. B. Stephenson	Stp
H. M. Johnson	Jns	K. Aa. Strand	Str
J. T. Kent	Knt	R. A. Woelffer	Wlf
A. Krasberg	Krs		

Sproul Gaertner machine	e
Yerkes Gaertner machine	g
Dearborn Gaertner machine	h
Dearborn Gaertner machine (small)	i

Plate No.	Obs.	Date 1900+	Δαcosδ	m.e.	Δδ	m.e.	No. of Images Measured in Δαcosδ	Δδ	Mean Error Single Image Δαcosδ	Δδ	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 48			OΣ 547										
S 521	Str	45.877	+ 2".077	± ".008	- 5".032	± ".008	88,89	90,90	± ".078	± ".079	- 44	+ 0.1	Rym h
Y 7	Str	46.876	+ 2.030	16	- 5.085	14	25,23	32,33	.080	.078	- 4	+ 0.1	Str g
Y 12	Str	.862	2.040	29	5.072	16	16,17	20,19	.119	.070	- 8	+ 0.1	Rym i
D 145	Gst	49.741	+ 1.907	10	- 5.146	9	64,64	65,65	.081	.069	+ 35	+ 0.1	Rym i
D 160	Gst	.790	1.925	14	5.192	14	63,65	63,63	.112	.109	+ 42	+ 0.1	Gst h
D 163	Gst	.793	1.903	10	5.167	9	57,57	64,65	.075	.074	+ 26	+ 0.1	Rym i
D 166	Gst	.820	1.904	11	5.173	12	58,59	63,63	.087	.094	+ 47	+ 0.1	Rym h
D 169	Gst	.834	1.909	15	5.149	15	54,52	53,53	.111	.106	+ 63	+ 0.1	Rym i
D 325	Gst	50.773	+ 1.879	11	- 5.197	11	59,59	59,59	.087	.083	+ 53	+ 0.1	Stp g
D 328	Rym	.787	1.877	10	5.189	8	64,64	64,64	.083	.067	+ 15	+ 0.1	Stp g
D 335	Rym	.866	1.876	14	5.202	14	62,62	64,64	.113	.109	+ 16	+ 0.1	Rym i
D 341	Rym	.964	1.835	17	5.181	15	55,57	60,62	.130	.116	+ 13	+ 0.1	Rym i
D 460	Gst	51.710	+ 1.838	11	- 5.260	10	56,56	56,56	.079	.071	+ 54	+ 0.1	Prv g
ADS 56			Σ 3061										
Y 64	Hll	48.924	+ 4.122	6	- 6.548	6	73,71	70,69	.055	.052	+ 1	+ 0.2	Duk g
D 346	Gst	50.967	+ 4.133	17	- 6.534	12	49,49	53,53	.118	.090	+ 44	+ 0.2	Stp g
ADS 60			Σ 3060										
Y 54	Duk	48.621	+ 2.864	7	- 2.073	8	59,58	54,53	.054	.056	+ 25	+ 0.3	Duk g
S 624	Str	49.694	+ 2.825	10	- 2.052	8	56,55	60,59	.077	.062	- 28	+ 0.3	Sch i
Y 100	Hll	.732	2.818	10	2.061	7	61,62	67,68	.080	.058	- 22	+ 0.3	Duk g
Y 103	Str	.825	2.859	13	2.052	14	47,39	49,49	.084	.095	+ 25	+ 0.3	Rym i
ADS 238			Σ 22		38 Psc AB, C								
D 342	Rym	50.964	- 3.468	31	- 2.374	22	25,25	28,28	.156	.116	+ 48	- 0.3	Rym i
ADS 497			Σ 42										
D 48	Rym	48.802	+ 2.538	18	+ 5.310	18	63,66	68,64	.144	.145	+ 32	+ 0.8	Gst h
D 175	Gst	49.927	+ 2.609	23	+ 5.507	20	54,54	59,58	.159	.156	+ 54	- 0.2	Duk g
D 179	Rym	.937	2.593	14	5.448	11	59,59	62,62	.110	.088	+ 64	- 0.2	Rym i
D 183	Rym	.951	2.606	16	5.428	11	62,63	63,63	.125	.089	+ 65	- 0.2	Rym i
D 347	Gst	50.967	+ 2.623	13	+ 5.501	11	43,43	45,45	.122	.106	+ 66	- 0.2	Stp g
ADS 671			Σ 60		η Cas								
S 569	Str	47.571	- 9.562	8	+ 2.880	8	63,63	63,63	.062	.065	+ 16	- 0.4	Str h
S 569			9.558	12	2.878	11	61,63	63,63	.090	.087		- 0.4	Rym h
S 594	Str	48.610	- 9.574	7	+ 2.977	9	80,79	80,80	.061	.077	- 63	- 0.4	Duk g
D 63	Rym	49.034	9.540	9	3.013	9	82,82	82,82	.082	.080	+ 54	0.0	Duk g
D 67	Rym	49.047	9.600	19	3.045	20	42,37	38,39	.118	.124	+ 78	0.0	Rym h
D 318	Sch	50.645	- 9.627	11	+ 3.295	11	60,60	61,61	.086	.085	+ 48	0.0	Stp g
D 329	Rym	.787	9.599	8	3.310	7	65,65	65,65	.065	.055	+ 16	0.0	Rym i
D 337	Rym	.866	9.587	13	3.298	15	56,56	49,49	.096	.106	+ 24	0.0	Rym i
D 343	Rym	.964	9.645	17	3.318	15	34,34	37,38	.098	.091	+ 47	0.0	Rym i
D 481	Rym, Wlf	52.026	- 9.688	6	+ 3.467	7	61,61	61,61	.051	.056	+ 45	0.0	Prv g
D 482	Rym, Wlf	.026	9.663	14	3.485	14	31,30	31,31	.079	.079	+ 82	0.0	KRy h
D 486	Rym	.054	9.645	14	3.492	12	52,51	52,52	.102	.088	+ 61	0.0	KRy h
ADS 895			Σ 87										
Y 23	Str	46.964	- 2.139	13	- 6.023	11	42,43	46,46	.086	.075	- 28	+ 0.5	Str g
Y 27	Str	47.019	2.153	12	6.055	8	46,42	48,44	.081	.051	+ 11	+ 0.5	Str g
D 49	Rym	48.914	- 2.196	22	- 6.036	23	38,37	38,41	.133	.145	+102	+ 0.5	Gst h
D 55	Rym	.919	2.216	14	6.079	10	74,76	73,77	.125	.088	+ 56	+ 0.5	Gst h
D 146	Gst	49.741	- 2.180	10	- 6.056	9	68,68	69,69	.081	.073	+ 47	+ 0.5	Rym i
D 155	Gst	.782	2.196	15	6.074	10	65,63	65,64	.117	.083	+ 37	+ 0.5	Gst h
D 161	Gst	.790	2.196	11	6.057	10	64,65	65,65	.086	.085	+ 25	+ 0.5	Gst h
D 165	Gst	.793	2.204	20	6.094	16	32,32	32,33	.116	.092	+ 41	+ 0.5	Gst h
D 326	Gst	50.773	- 2.188	17	- 6.038	15	58,58	55,55	.127	.111	+ 70	+ 0.5	Stp g
D 470	Gst	51.783	- 2.162	17	- 6.009	14	51,54	54,56	.125	.106	+ 42	+ 0.5	Gst h
ADS 1630			Σ 205		γ And A, BC								
S 525	Str	46.003	+ 8.845	5	+ 4.458	6	78,80	66,70	.043	.051	- 29	- 0.3	Str g
S 525			8.839	6	4.473	5	87,89	90,90	.053	.045		- 0.3	Pts g

Plate No.	Obs.	Date 1900+	Δαcosδ	m.e.	Δδ	m.e.	No. of Images Measured in Δαcosδ	Δδ	Mean Error Single Image Δαcosδ	Δδ	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 1630 (continued)													
S 613	Str	49.678	+ 8."829	±".006	+ 4."454	±".007	59,59	60,60	±".046	±".051	- 46	- 0.3	Duk g
D 471	Gst	51.783	+ 8.792	8	+ 4.471	6	43,43	43,43	.052	.036	+ 59	- 0.3	Wlf h
D 485	Rym, Wlf	52.040	+ 8.822	5	+ 4.474	6	66,66	66,66	.042	.048	+ 37	- 0.3	Prv g
D 487	Rym	.054	8.821	7	4.477	8	37,37	37,37	.045	.050	+ 33	- 0.3	Wlf h
ADS 1697			Σ227		ι Tri								
S 526	Str	46.003	+ 3.665	11	+ 1.175	8	38,44	40,39	.068	.048	+ 5	- 0.4	Str g
ADS 1860			Σ262		ι Cas A,C								
S 614	Str	49.678	+ 6.673	13	- 2.986	12	73,77	76,77	.114	.107	- 26	+ 0.2	Duk g
D 488	Rym	52.054	+ 6.658	10	- 2.948	12	61,61	62,62	.079	.095	+ 66	+ 0.1	Prv g
ADS 2081			Σ296		θ Per								
D 64	Rym	49.034	-16.025	17	+10.052	17	82,82	82,82	.154	.152	+ 53	- 0.4	Rym h
ADS 2218			Σ326										
S 527	Str	46.003	- 4.266	20	- 5.275	12	17,17	38,38	.085	.077	0	+ 0.1	Rym h
S 533	Str	.008	4.246	17	5.285	8	22,21	38,38	.077	.052	+ 57	+ 0.1	Rym h
S 570	Str	47.972	- 4.212	16	- 5.253	18	33,34	36,36	.095	.109	- 20	+ 0.1	Rym h
S 570			4.236	16	5.229	19	34,34	35,35	.093	.111		+ 0.1	Str g
ADS 2757			Σ443										
S 571	Str	47.972	+ 6.185	12	+ 5.035	10	43,43	43,43	.081	.068	- 12	+ 0.5	Duk g
S 571			6.179	15	5.036	14	43,43	43,43	.096	.091		+ 0.5	Rym h
D 51	Rym	48.917	+ 6.171	17	+ 4.954	19	72,70	72,71	.142	.162	+ 33	+ 0.5	Gst h
D 56	Rym	.919	6.145	19	4.976	14	51,50	52,52	.134	.103	+ 12	+ 0.5	Gst h
D 186	Rym	49.951	+ 6.148	19	+ 4.978	17	56,56	58,58	.145	.126	+ 8	+ 0.5	Rym i
D 202	Gst	50.044	6.156	13	5.002	10	71,71	71,71	.109	.082	+ 48	+ 0.5	Gst h
D 207	Gst	.050	6.162	13	4.952	13	56,55	56,57	.099	.100	+ 40	+ 0.5	Gst h
D 210	Rym	.052	6.171	12	4.994	12	65,64	64,63	.100	.099	+ 24	+ 0.5	Gst h
D 330	Rym	.787	+ 6.174	10	+ 4.941	8	65,65	65,65	.079	.065	+ 43	+ 0.5	Stp g
D 344	Gst	.964	6.184	15	4.926	15	55,55	51,51	.112	.107	+ 13	+ 0.5	Stp g
D 349	Gst	51.022	6.139	17	4.962	19	46,47	47,46	.119	.129	+ 40	+ 0.5	Rym i
D 351	Rym	.030	6.188	15	4.964	15	62,61	62,64	.117	.118	+ 9	+ 0.5	Rym i
D 461	Gst	.710	+ 6.150	14	+ 4.917	13	39,38	39,38	.083	.080	+ 52	+ 0.5	Wlf h
D 464	Gst	.770	6.160	15	4.926	21	25,25	25,25	.076	.107	+ 34	+ 0.5	Gst h
D 494	Gst	52.081	6.136	10	4.903	10	46,46	46,46	.067	.066	+ 40	+ 0.5	Wlf h
ADS 3079			Σ516		39 Eri								
D 65	Rym	49.034	+ 3.558	24	- 5.370	20	52,53	55,57	.171	.150	+ 41	- 0.2	Rym i
D 220	Gst	50.097	+ 3.522	10	- 5.326	11	60,60	60,60	.078	.082	+ 36	- 0.2	Duk g
D 331	Rym	50.787	+ 3.580	9	- 5.347	7	62,62	61,61	.072	.058	+ 47	- 0.2	Stp g
D 474	Gst	51.814	+ 3.568	10	- 5.292	9	52,52	53,53	.075	.064	+ 25	- 0.2	Prv g
D 475	Gst	.814	3.515	10	5.338	9	63,62	58,63	.083	.068	+ 63	- 0.2	Gst h
D 495	Gst	52.081	3.534	18	5.270	15	34,34	34,34	.106	.089	+ 67	- 0.2	Wlf h
ADS 3188			OΣ81		56 Per								
S 528	Str	46.003	+ 2.231	13	+ 3.870	15	37,43	35,36	.084	.091	+ 1	+ 0.2	Str g
S 528			2.248	16	3.857	15	74,75	75,73	.139	.131		- 0.1	Pts g
S 534	Str	.009	2.254	17	3.850	13	31,31	31,31	.097	.070	+ 9	- 0.4	Str g
S 534			2.256	17	3.842	12	39,39	39,39	.104	.076		- 0.4	Pts g
S 572	Str	47.972	+ 2.224	14	+ 3.917	13	35,36	36,37	.086	.078	- 1	+ 0.3	Duk g
S 572			2.243	11	3.926	13	38,38	37,36	.079	.081		- 0.1	Duk g
ADS 3353			Σ572										
S 529	Str	46.003	+ 1.062	8	+ 3.793	8	63,66	67,67	.069	.065	+ 40	+ 0.1	Str g
S 529			1.067	9	3.781	9	70,69	72,72	.071	.076		+ 0.1	Pts g
S 530	Str	.006	1.047	8	3.805	7	59,59	57,56	.061	.053	- 5	+ 0.1	Str g
S 530			1.062	8	3.801	9	57,59	56,57	.063	.068		+ 0.1	Pts g
Y 29	Str	47.019	+ 1.067	10	+ 3.793	8	58,65	69,68	.074	.063	+ 2	+ 0.1	Str g
Y 61	Duk	48.788	+ 1.066	4	+ 3.821	5	67,66	67,65	.035	.041	- 12	+ 0.1	Duk g

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	$\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	$\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. M-ch.
ADS 3353 (continued)													
D 61	Rym	48.936	+ 1"056	±"010	+ 3"804	±"008	79,79	80,80	±"085	±"073	+ 22	+ 0.1	Rym h
D 62	Rym	.977	1.041	13	3.770	13	60,61	61,61	.098	.104	+ 42	+ 0.1	Rym i
D 66	Rym	49.034	1.038	11	3.812	12	72,71	82,80	.095	.104	+139	+ 0.1	Duk g
D 211	Rym	50.053	+ 1.064	10	+ 3.808	10	65,65	63,64	.079	.083	+ 54	+ 0.1	Gst h
D 221	Gst	.097	1.051	8	3.842	6	59,59	61,61	.060	.046	+ 55	+ 0.1	Duk g
D 350	Gst	51.022	+ 1.048	11	+ 3.794	9	53,53	52,52	.082	.066	+ 24	+ 0.1	Stp g
D 352	Rym	.030	1.035	13	3.872	10	51,55	55,56	.094	.076	+ 41	+ 0.1	Gst h
D 352			1.029	8	3.849	9	47,47	47,47	.057	.060		+ 0.1	Prv g
D 358	Gst	.096	1.060	8	3.818	8	58,58	60,60	.065	.058	+ 20	+ 0.1	Stp g
D 483	Gst	52.032	+ 1.026	8	+ 3.840	6	34,34	34,34	.047	.034	+ 32	+ 0.1	Prv g
ADS 3417			Σ589										
Y 30	Str	47.019	- 4.357	21	+ 1.482	18	44,45	46,43	.137	.118	+ 47	+ 0.2	Str g
Y 63	Duk	48.788	- 4.336	7	+ 1.487	7	62,63	65,65	.058	.053	+ 90	+ 0.2	Duk g
D 70	Rym	49.048	- 4.309	13	+ 1.442	12	62,61	64,64	.104	.095	+ 20	+ 0.2	Rym i
ADS 3568			Σ622										
Y 62	Duk	48.788	+ 0.553	11	- 2.511	10	62,58	67,67	.086	.085	+ 18	+ 0.1	Duk g
ADS 3572			Σ616		ωAur								
D 203	Gst	50.044	- 0.138	12	+ 5.358	12	47,47	43,48	.082	.083	+ 20	- 0.3	Gst h
D 222	Gst	.097	0.137	11	5.405	12	57,54	53,56	.080	.086	+ 90	- 0.3	Duk g
D 332	Rym	.787	- 0.143	10	+ 5.355	7	53,53	64,64	.071	.054	+ 39	- 0.3	Rym i
D 359	Gst	51.096	0.128	11	5.338	12	51,51	56,56	.080	.092	+ 44	- 0.3	Stp g
ADS 4099			Σ711										
D 193	Gst	50.017	- 6.051	23	- 5.453	21	59,53	52,59	.170	.156	+ 80	- 0.1	Gst h
D 212	Rym	.053	6.078	11	5.446	10	62,62	63,62	.089	.076	+ 45	- 0.1	Gst h
D 230	Gst	.179	6.101	10	5.442	10	60,61	62,62	.076	.078	+102	- 0.1	Duk g
D 360	Gst	51.096	- 6.120	18	- 5.412	16	49,49	47,47	.129	.109	+ 63	- 0.1	Stp g
D 513	Rym	52.174	- 6.003	29	- 5.350	30	32,36	36,30	.168	.170	+ 31	- 0.1	Gst h
ADS 4179			Σ738		λOri								
S 531	Str	46.006	+ 2.984	9	+ 3.168	9	42,49	46,45	.058	.060	- 20	- 0.1	Pts g
S 531			2.984	9	3.165	8	43,45	42,43	.060	.052		- 0.1	Str g
S 535	Str	.009	2.989	9	3.159	7	42,42	47,47	.061	.046	- 19	- 0.1	Str g
S 535			2.985	8	3.166	6	67,67	64,64	.062	.050		- 0.1	Pts g
ADS 4200			Σ742										
Y 65	Hll	48.999	- 3.804	9	- 0.226	7	47,48	50,48	.064	.051	- 53	- 0.2	Duk g
Y 74	Hll	49.113	3.785	8	0.228	8	61,62	62,64	.061	.066	+ 46	- 0.2	Str g
Y 107	Str	50.017	- 3.782	7	- 0.217	5	60,62	64,63	.051	.037	+ 1	- 0.2	Sch i
ADS 5368			Σ946										
D 204	Gst	50.045	+ 3.084	11	- 2.638	12	55,54	54.57	.080	.085	+ 20	0.0	Gst h
D 213	Rym	.053	3.083	14	2.643	13	45,47	42,42	.096	.084	- 31	0.0	Gst h
D 333	Rym	.787	+ 3.090	12	- 2.650	14	53,53	53,53	.085	.098	+ 9	0.0	Rym i
D 361	Rym	51.145	3.111	22	2.685	26	37,37	47,47	.131	.177	+ 43	0.0	Stp g
D 362	Rym	.145	3.086	27	2.656	24	43,39	41,44	.170	.157	+ 73	0.0	Gst h
D 365	Rym	.164	3.109	28	2.620	34	39,33	36,30	.169	.193	+ 15	0.0	Gst h
ADS 5400			Σ948		12 Lyn A,B								
S 532	Str	46.006	+ 1.557	28	- 0.155	20	17,19	17,22	.121	.088	- 38	+ 0.6	Str g
S 536	Str	.009	1.484	11	0.133	7	64,66	46,48	.088	.050	- 42	+ 0.6	Rym i
D 361	Rym	51.145	+ 1.775	14	- 0.087	12	57,57	69,69	.104	.097	+ 43	+ 0.6	Stp g
D 362	Rym	.145	1.532	12	0.122	9	95,104	94,98	.120	.091	+ 73	+ 0.6	Gst h
D 365	Rym	.164	1.500	20	0.085	21	24,33	28,24	.108	.107	+ 15	+ 0.6	Gst h
D 367	Rym	.172	1.716	17	0.066	17	64,64	52,52	.137	.122	+ 13	+ 0.6	Stp g
D 477	Gst	.814	1.438	15	0.090	12	53,50	45,48	.111	.078	+ 20	+ 0.6	Gst h
ADS 5400			Σ948 A,C		12 Lyn A,C								
S 532	Str	46.006	- 6.882	12	+ 5.336	11	25,34	28,28	.066	.059	- 38	- 0.2	Str g
S 536	Str	.009	6.881	8	5.310	6	68,67	83,83	.066	.054	- 42	- 0.2	Rym i

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	No. of Images Measured in $\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	Mean Error Single Image $\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 5400 (continued)													
D 204	Gst	50.045	- 6″.984	± ″.022	+ 5″.268	± ″.015	35,33	39,32	± ″.127	± ″.091	+ 20	+ 0.4	Gst h
D 213	Rym	.053	7.050	30	5.293	13	18,21	22,30	.131	.065	- 31	+ 0.4	Gst h
D 333	Rym	.787	- 6.851	8	+ 5.282	8	64,65	65,65	.069	.062	+ 9	+ 0.4	Rym i
D 361	Rym	51.145	6.821	12	5.314	10	42,42	55,55	.079	.076	+ 43	- 0.1	Stp g
D 362	Rym	.145	6.941	14	5.319	11	53,57	53,47	.102	.079	+ 73	- 0.1	Gst h
D 365	Rym	.164	6.974	20	5.316	15	29,26	25,31	.106	.081	+ 15	- 0.1	Gst h
D 367	Rym	.172	6.835	18	5.304	15	36,36	39,39	.105	.096	+ 13	- 0.1	Stp g
D 477	Gst	.814	- 6.915	14	+ 5.305	16	41,33	32,27	.083	.084	+ 20	+ 0.4	Gst h
D 490	Rym,Wlf	52.079	6.966	23	5.278	10	62,62	57,56	.181	.076	+ 25	+ 0.4	Prv g
ADS 5400			Σ948 AB,C		12 Lyn AB,C								
D 208	Gst	50.050	- 7.415	14	+ 5.296	14	61,61	61,61	.111	.109	- 30	+ 0.4	Gst h
D 484	Wlf,Gst	52.038	- 7.493	10	+ 5.340	11	55,55	54,56	.075	.082	+ 72	+ 0.4	Wlf h
ADS 5559			Σ982		38 Gem								
D 197	Rym	50.028	+ 3.213	24	- 6.025	29	20,21	22,22	.109	.135	+ 66	- 0.2	Rym i
D 216	Rym	.091	3.186	13	6.012	13	56,56	57,58	.097	.096	+ 1	- 0.2	Rym i
D 225	Rym	.154	3.200	11	6.022	8	61,61	64,64	.087	.068	+ 35	- 0.2	Rym h
D 508	Rym	52.155	+ 3.239	8	- 6.045	8	65,65	65,65	.067	.068	+ 33	- 0.2	Gst h
D 514	Rym	.174	3.188	12	6.021	10	50,50	54,54	.083	.076	- 14	- 0.2	Prv g
ADS 5983			Σ1066		δ Gem								
S 537	Str	46.009	- 3.749	8	- 5.350	8	50,52	51,54	.059	.059	- 7	+ 0.3	Str g
D 73	Rym	49.089	- 3.724	11	- 5.199	10	78,79	79,80	.095	.085	+ 27	+ 0.4	Rym i
D 74	Rym	.111	3.757	19	5.234	13	66,65	71,71	.155	.109	-111	+ 0.4	Rym i
D 205	Gst	50.045	- 3.776	17	- 5.277	13	45,45	47,47	.116	.092	+ 40	+ 0.4	Rym i
D 231	Gst	.179	3.751	12	5.215	10	56,56	57,57	.092	.079	+ 53	+ 0.4	Rym h
D 353	Rym	51.050	- 3.777	13	- 5.243	13	50,50	45,45	.091	.084	+ 24	+ 0.4	Stp g
D 366	Rym	.164	3.749	18	5.213	19	31,31	37,37	.101	.113	+ 27	0.0	Rym i
D 505	Wlf	52.152	- 3.765	9	- 5.219	8	56,56	56,56	.064	.058	- 2	+ 0.6	Wlf h
ADS 6175			Σ1110		α Gem								
S 538	Str	46.009	- 0.801	8	- 3.177	6	79,78	78,78	.073	.054	+ 23	0.0	Grc e
S 538			0.837	4	3.167	4	71,69	71,69	.032	.032		0.0	Mrs e
S 540	Str	.219	0.813	7	3.147	7	64,68	67,64	.055	.053	- 16	0.0	Duk g
Y 24	Str	.965	- 0.751	6	- 3.130	7	40,46	42,38	.036	.043	- 28	0.0	Str g
S 573a	Str	47.972	- 0.642	6	- 2.962	9	29,30	32,31	.035	.050	- 31	0.0	Str h
S 573b	Str	.972	0.634	10	3.004	14	27,29	29,27	.052	.074	- 31	0.0	Str h
Y 43	Str	48.196	0.623	8	3.010	7	73,72	67,56	.068	.055	- 27	0.0	Rym h
Y 75	Str	49.154	- 0.545	7	- 2.963	8	40,39	38,37	.044	.050	- 14	0.0	Str h
Y 82	Str	.174	0.544	4	2.969	3	46,46	46,49	.035	.021	- 22	0.0	Str h
Y 118	Hll	51.172	- 0.345	13	- 2.839	12	17,19	17,16	.054	.050	+ 6	0.0	Str g
Y 138	Hll,Knt	52.114	- 0.266	3	- 2.784	2	68,68	68,68	.022	.019	- 26	0.0	Prv g
Y 139	Hll,Knt	.114	0.269	3	2.783	2	68,68	68,68	.023	.017	- 2	0.0	Prv g
Y 145	Hlf,Prv	.155	0.260	3	2.781	2	59,59	62,62	.024	.020	- 5	0.0	Prv g
ADS 6650			Σ1196 AB,C		ζ Cnc AB,C								
S 539	Str	46.009	+ 5.644	12	- 0.566	8	57,47	51,50	.080	.056	+ 51	+ 0.1	Gst g
S 539			5.641	11	0.555	10	63,62	62,62	.086	.075		+ 0.1	Duk g
S 541	Str	.219	5.598	10	0.560	8	68,66	69,67	.082	.069	+ 15	+ 0.1	Duk g
Y 19	Str	46.924	+ 5.621	10	- 0.598	7	59,53	39,37	.075	.044	+ 13	+ 0.1	Str g
Y 25	Str	.965	5.601	9	0.532	6	42,54	52,58	.065	.048	- 3	+ 0.1	Str g
Y 35	Str	47.069	5.566	17	0.572	13	31,38	35,35	.100	.075	+ 3	+ 0.1	Str g
S 576	Bin	48.090	+ 5.538	10	- 0.584	9	65,66	67,66	.080	.075	+ 34	+ 0.1	Duk g
S 577	Bin	.090	5.562	9	0.581	9	65,65	65,65	.073	.073	+ 76	+ 0.1	Duk g
D 78	Rym	49.258	+ 5.574	11	- 0.573	9	73,72	74,74	.092	.078	+ 61	+ 0.1	Duk g
D 81	Rym	.278	5.578	13	0.586	12	66,62	64,63	.102	.092	+ 78	+ 0.1	Duk g
D 84	Rym	.283	5.532	18	0.562	15	63,57	63,58	.138	.114	+ 49	+ 0.1	Duk g
D 89	Rym	.299	5.589	11	0.570	8	67,61	69,70	.085	.071	+ 79	+ 0.1	Duk g

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	$\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	$\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 6650 (continued)													
D 177	Gst	49.936	+ 5″573	± ″017	- 0″562	± ″014	29,29	29,29	± ″090	± ″077	+ 57	+ 0.1	Rym i
D 182	Rym	.938	5.564	21	0.606	17	50,50	56,57	.148	.129	+ 5	+ 0.1	Rym i
D 187	Rym	.952	5.587	13	0.566	12	63,63	63,63	.101	.091	+ 31	+ 0.1	Duk g
D 189	Gst	.955	5.556	17	0.566	15	50,54	56,55	.123	.112	+ 57	+ 0.1	Duk g
D 194	Gst	50.017	5.608	13	0.601	10	45,45	48,49	.089	.073	+ 42	+ 0.1	Rym i
D 198	Rym	.028	5.587	21	0.571	19	26,23	21,23	.105	.089	+ 19	+ 0.1	Gst h
D 228	Rym	.168	5.578	9	0.583	8	63,62	65,65	.069	.067	- 13	+ 0.1	Duk g
D 354	Rym	51.050	+ 5.674	12	- 0.565	11	62,61	62,62	.098	.089	- 5	+ 0.1	Gst h
D 357	Rym	.088	5.660	15	0.567	18	41,45	40,40	.100	.111	+ 20	+ 0.1	Gst h
D 363	Rym	.145	5.706	9	0.546	8	67,67	67,67	.074	.062	+ 19	+ 0.1	Gst h
D 368	Rym	.172	5.681	10	0.558	9	64,64	65,63	.083	.071	- 13	+ 0.1	Gst h
D 371	Gst	.219	5.699	9	0.538	9	60,60	60,60	.071	.073	+ 18	+ 0.1	Gst h
D 372	Gst	.219	5.691	11	0.576	10	42,42	42,42	.070	.064	+ 43	+ 0.1	Gst h
D 478	Gst	51.814	+ 5.714	7	- 0.538	7	66,66	66,66	.054	.056	- 28	+ 0.1	Gst h
D 496	Gst	52.101	5.729	9	0.517	8	62,62	61,62	.072	.064	+ 1	+ 0.1	Gst h
D 497	Gst	.101	5.750	8	0.513	6	58,58	58,58	.059	.048	+ 82	+ 0.1	Prv g
D 499	Gst	.109	5.713	6	0.512	6	66,66	66,66	.050	.053	+ 80	+ 0.1	Prv g
D 503	Wlf	.114	5.764	11	0 514	10	33,33	33,33	.064	.059	+ 39	+ 0.1	Gst h
D 506	Wlf	.153	5.725	7	0.539	7	65,65	65,66	.058	.056	+ 9	+ 0.1	Gst h
ADS 7139			Σ1300										
Y 26	Str	46.965	- 0.914	10	- 5.146	9	46,52	50,46	.072	.065	+ 2	+ 0.2	Str g
Y 36	Str	47 069	0.881	14	5.168	15	31,37	36,37	.112	.092	+ 7	+ 0.2	Str g
Y 68	Duk	49.037	- 0.900	7	- 5.168	8	69,67	67,66	.059	.063	+ 50	+ 0.2	Duk g
D 79	Rym	.258	0.918	21	5.180	24	60,66	58,62	.169	.187	+ 43	+ 0.2	Gst h
D 82	Rym	.278	0.890	14	5.171	11	80,85	86,86	.131	.099	+ 63	+ 0.2	Rym i
D 85	Rym	.283	0.890	18	5.141	19	68,68	65,64	.144	.155	+ 41	+ 0.2	Gst h
D 178	Gst	49.936	- 0.885	18	- 5.153	16	45,44	46,46	.118	.108	+ 52	+ 0.2	Gst h
D 229	Rym	50.168	0.910	19	5.169	17	66,66	66,66	.152	.135	- 21	+ 0.2	Gst h
D 235	Rym	.200	0.918	13	5.138	17	63,63	60,60	.105	.132	- 9	+ 0.2	Gst h
D 239	Gst	.241	0.875	17	5.177	16	57,57	59,59	.128	.125	+ 11	+ 0.2	Gst h
D 240	Gst	.260	0.889	13	5.182	14	57,58	57,58	.100	.105	+ 14	+ 0.2	Gst h
D 355	Rym	51.050	- 0.888	18	- 5.196	16	64,63	60,60	.141	.128	+ 12	+ 0.2	Gst h
D 369	Rym	.172	0.866	14	5.189	13	64,63	63,64	.114	.106	- 19	+ 0.2	Gst h
D 373	Gst	.219	0.862	12	5.180	13	60,58	58,61	.093	.098	+ 54	+ 0.2	Gst h
D 516	Rym	52.204	- 0.865	12	- 5.178	11	66,61	61,63	.095	.086	+ 9	+ 0.2	Gst h
D 531	Gst	.292	0.868	7	5.205	8	64,64	64,64	.059	.062	+ 37	+ 0.2	Prv g
ADS 7251			Σ1321										
Y 20	Str	46.924	+17.863	6	+ 4.091	6	39,36	37,39	.038	.034	- 1	+ 0.2	Str g
Y 37	Str	47.110	17.886	18	4.037	10	28,31	30,32	.095	.059	- 30	+ 0.2	Str g
D 77	Rym	49.256	+17.853	11	+ 3.823	9	74,76	79,79	.092	.077	+ 59	+ 0.2	Rym h
D 80	Rym	.258	17.869	10	3.832	9	66,66	66,66	.079	.075	+ 64	+ 0.2	Sch i
D 83	Rym	.278	17.863	11	3.831	9	67,67	67,67	.091	.072	+ 87	+ 0.2	Rym h
D 86	Rym	.283	17.833	15	3.859	11	54,51	54,52	.110	.082	+ 67	+ 0.2	Gst h
D 190	Gst	49.955	+17.868	16	+ 3.795	15	59,60	61,61	.122	.116	+ 43	+ 0.2	Gst h
D 195	Gst	50.018	17.832	15	3.814	9	63,63	63,63	.120	.068	+ 23	+ 0.2	Ltj i
D 199	Rym	.029	17.869	12	3.779	10	62,62	63,63	.097	.083	+ 46	+ 0.2	Gst h
D 356	Rym	51.050	+17.863	11	+ 3.733	11	65,65	65,65	.089	.086	+ 33	+ 0.2	Gst h
D 364	Rym	.145	17.837	12	3.686	9	65,65	65,65	.093	.071	+ 41	+ 0.2	Krs h
D 364			17.833	12	3.663	10	65,65	65,65	.093	.080		+ 0.2	Rym i
D 370	Rym	.172	17.880	19	3.685	18	25,26	27,27	.095	.095	- 1	+ 0.2	Spo h
D 394	Rym	.306	17.832	13	3.668	11	59,60	64,64	.101	.088	+ 50	+ 0.2	Spo h
D 491	Rym, Wlf	52.079	+17.863	8	+ 3.591	9	33,33	33,33	.049	.052	+ 40	+ 0.2	Gst h
D 510	Rym	.156	17.866	13	3.569	13	33,33	33,33	.075	.073	0	+ 0.2	Gst h
D 517	Rym	.205	17.852	8	3.573	6	66,66	66,66	.064	.053	+ 29	+ 0.2	Rym i
ADS 7380			Σ1355										
Y 112	Hll	51.257	- 0.744	5	+ 2.190	4	50,50	50,50	.033	.025	+ 53	+ 0.2	Prv g
ADS 7402			Σ1351		2. UMa								
D 241	Rym	50.277	-22.753	11	- 0.309	9	40,40	40,40	.066	.056	+ 13	+ 0.5	Rym i
D 249	Rym	.332	22.740	22	0.344	17	33,33	33,33	.126	.096	+ 66	+ 0.5	Rym i

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	$\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	$\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 7402 (continued)													
D 527	Rym	52.289	-22".696	±".032	- 0".260	±".023	42,39	36,36	±".206	±".138	+ 41	+ 0.5	Rym i
D 534	Rym	.319	22.745	18	0.348	14	47,48	48,53	.127	.102	+ 44	+ 0.5	Rym i
D 538	Rym	.322	22.727	16	0.205	13	29,29	29,29	.066	.068	+ 43	+ 0.5	Rym i
ADS 7724			Σ1424		γ Leo								
Y 21	Str	46.924	+ 3.628	8	- 2.107	7	46,46	51,50	.051	.047	- 6	+ 0.2	Rym i
Y 77	Str	49.155	3.657	6	- 2.152	5	46,48	49,48	.039	.036	- 31	+ 0.2	Duk g
ADS 7778			Σ1434										
Y 31	Str	47.047	- 6.334	20	+ 0.799	22	24,24	28,28	.097	.119	+ 7	+ 0.2	Rym i
D 191	Gst	49.955	- 6.406	23	+ 0.854	24	52,53	55,53	.164	.174	+ 21	+ 0.2	Duk g
D 196	Gst	50.018	6.330	20	0.836	20	56,60	58,55	.155	.153	+ 1	+ 0.2	Gst h
D 200	Rym	.029	6.309	22	0.872	17	49,50	50,49	.151	.116	+ 16	+ 0.2	Gst h
D 217	Rym	.091	6.369	33	0.794	25	51,51	56,53	.234	.183	+ 13	+ 0.2	Rym i
D 374	Gst	51.219	- 6.348	21	+ 0.833	18	58,56	56,57	.158	.133	+ 21	+ 0.2	Gst h
D 384	Rym	.298	6.369	15	0.840	15	62,63	63,63	.116	.122	- 2	+ 0.2	Gst h
D 395	Rym	.306	6.390	14	0.849	14	56,56	56,56	.104	.103	+ 21	+ 0.2	Prv g
D 480	Gst	.940	- 6.346	16	+ 0.875	15	45,45	47,53	.108	.107	+ 19	+ 0.2	Gst h
D 492	Rym, Wlf	52.080	6.366	14	0.851	14	39,39	38,38	.085	.086	+ 34	+ [illegible]	Rym i
D 498	Gst	.101	6.362	12	0.845	13	60,64	61,64	.096	.100	+ 30	+ 0.2	Gst h
D 507	Wlf	.153	6.345	14	0.851	11	63,63	62,62	.111	.089	+ 12	+ 0.2	Gst h
D 511	Rym	.156	6.341	21	0.825	19	28,29	28,29	.111	.100	+ 15	+ 0.2	Wlf h
D 518	Rym	.205	6.397	8	0.835	7	65,65	65,65	.061	.056	+ 31	+ 0.2	Prv g
ADS 8065			Σ1510										
D 192	Gst	49.955	- 2.347	19	+ 4.380	22	42,41	40,42	.123	.142	+ 32	+ 0.3	Rym i
D 214	Rym	50.072	2.338	21	4.387	19	41,41	43,44	.131	.125	+ 14	+ 0.3	Rym i
D 218	Rym	.092	2.342	16	4.481	18	46,46	48,50	.107	.129	+ 29	+ 0.3	Rym i
D 224	Gst	.135	2.339	20	4.418	20	36,36	37,38	.121	.120	+ 37	+ 0.3	Rym i
D 375	Gst	51.219	- 2.382	13	+ 4.456	12	62,59	62,63	.102	.095	+ 27	+ 0.3	Gst h
D 385	Rym	.298	2.310	15	4.405	13	54,54	55,55	.110	.099	+ 17	+ 0.3	Stp g
D 396	Rym	.306	2.354	10	4.407	8	58,58	59,59	.073	.058	+ 24	+ 0.3	Prv g
D 522	Wlf	52.268	- 2.366	10	+ 4.478	10	66,66	66,66	.077	.084	+ 9	+ 0.3	Wlf h
ADS 8108			Σ1520										
D 528	Rym	52.289	- 3.420	8	+12.189	8	66,66	66,66	.066	.066	- 2	- 0.4	Wlf h
D 539	Rym	.322	3.424	12	12.165	11	61,61	61,60	.092	.085	+ 25	- 0.4	Gst h
D 540	Wlf	.325	3.433	10	12.191	9	64,63	64,64	.077	.074	+ 11	- 0.4	Wlf h
ADS 8119			Σ1523		ξ UMa								
Y 110	Hll	50.242	- 0.726	5	- 1.397	8	49,44	44,44	.032	.056	- 32	+ 0.5	Rym i
Y 120	Hll	51.257	- 0.617	5	- 1.428	4	58,58	60,60	.036	.035	- 24	+ 0.5	Stp g
Y 121	Hll	.257	0.615	4	1.434	4	67,67	70,70	.029	.038	0	+ 0.5	Stp g
Y 127	Hll	.334	0.576	5	1.408	5	46,46	49,49	.036	.036	+ 2	+ 0.5	Prv g
Y 141	Jns	52.115	- 0.406	4	- 1.599	3	31,31	31,31	.021	.018	- 36	+ 0.5	Prv g
ADS 8175			Σ1543		57 UMa								
D 96	Rym	49.360	- 0.071	14	+ 5.455	17	61,62	60,59	.112	.129	+ 17	+ 0.2	Gst h
D 96			0.067	14	5.453	16	62,62	62,62	.114	.124		+ 0.2	Gst h
D 215	Rym	50.072	- 0.068	14	+ 5.428	19	56,56	56,56	.107	.140	+ 31	+ 0.2	Gst h
D 242	Rym	.277	0.065	9	5.496	11	64,64	63,65	.070	.090	+ 24	+ 0.2	Gst h
D 245	Gst	.299	0.090	10	5.479	7	52,51	53,52	.075	.051	+ 54	+ 0.2	Rym i
D 257	Rym	.354	0.067	12	5.483	11	64,64	65,65	.093	.090	+ 4	+ 0.2	Gst h
D 379	Rym	51.260	- 0.097	14	+ 5.457	9	64,65	65,64	.109	.075	+ 37	- 0.3	Gst h
D 386	Rym	.298	0.096	13	5.453	11	59,59	61,61	.101	.084	+ 50	+ 0.2	Stp g
D 397	Rym	.307	0.085	9	5.451	9	63,62	64,62	.075	.071	+ 41	+ 0.2	Krs h
ADS 8236			Σ1553										
D 219	Gst	50.094	+ 1.336	13	- 5.834	14	30,30	30,30	.071	.077	+ 39	+ 0.5	Duk g
D 250	Rym	.332	1.324	9	5.858	9	65,65	65,65	.073	.073	+ 54	+ 0.5	Gst h
D 259	Gst	.376	1.316	10	5.861	11	64,62	65,65	.082	.092	+ 34	+ 0.5	Gst h
D 493	Rym, Wlf	52.080	+ 1.291	11	- 5.801	12	29,30	33,33	.058	.072	+ 8	+ 0.5	Rym i
D 504	Rym	.142	1.307	17	5.839	14	32,32	32,32	.097	.080	+ 2	+ 0.5	Rym i

Plate No.	Obs.	Date 1900+	Δαcosδ	m.e.	Δδ	m.e.	No. of Images Measured in Δαcosδ	Δδ	Mean Error Single Image Δαcosδ	Δδ	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 8236 (continued)													
D 519	Rym	52.205	+ 1″.315	± ″.006	- 5″.860	± ″.006	64,64	64,64	± ″.044	± ″.046	+ 4	+ 0.5	Prv g
D 529	Rym	.290	1.292	7	5.823	5	66,66	66,66	.056	.041	+ 43	+ 0.5	Prv g
ADS 8250			Σ1561										
D 99	Rym	49.395	- 9.332	10	- 2.561	9	76,78	77,79	.086	.082	+ 73	0.0	Duk g
D 255	Rym	50.335	- 9.263	11	- 2.583	15	51,51	50,50	.102	.108	+ 39	0.0	Rym i
D 260	Gst	.376	9.296	12	2.586	12	55,56	55,55	.086	.089	+ 78	0.0	Gst h
D 523	Wlf	52.268	- 9.243	8	- 2.607	8	64,64	64,64	.062	.060	+ 36	0.0	Gst h
D 543	Gst	.330	9.242	14	2.635	12	32,34	32,33	.081	.068	+ 11	0.0	Gst h
D 545	Gst	.339	9.260	10	2.634	10	62,62	62,62	.081	.080	+ 15	0.0	Wlf h
ADS 8477			Σ1619										
Y 69	Duk	49.038	- 7.186	8	+ 0.580	8	67,68	68,67	.063	.067	- 28	+ 0.3	Duk g
D 90	Rym	.300	7.181	15	0.586	8	56,55	69,66	.115	.066	+ 7	+ 0.3	Sch i
D 94	Rym	.357	7.240	25	0.581	14	32,30	35,32	.139	.082	+ 55	+ 0.3	Sch i
D 243	Rym	50.277	- 7.176	14	+ 0.584	10	64,64	64,64	.111	.082	+ 30	+ 0.3	Gst h
D 376	Gst	51.219	- 7.145	21	+ 0.581	15	56,56	58,58	.155	.116	+ 15	+ 0.3	Gst h
Y 122	Hll	.257	7.175	3	0.558	4	73,73	73,73	.029	.034	- 23	+ 0.3	Prv g
D 544	Gst	52.332	- 7.172	14	+ 0.506	13	35,35	35,35	.085	.077	+ 58	+ 0.3	Rym i
D 546	Gst	.339	7.166	9	0.514	8	62,62	62,62	.072	.063	+ 19	+ 0.3	Wlf h
ADS 8606			Σ1661										
Y 70	Duk	49.038	- 2.157	17	- 1.096	17	24,29	29,29	.088	.093	- 6	+ 0.2	Duk g
Y 128	Stp,Hll	51.334	- 2.159	12	- 1.073	10	35,35	27,27	.069	.051	- 40	+ 0.2	Prv g
ADS 8630			Σ1670		γ Vir								
Y 41	Str	47.186	- 4.004	6	+ 3.825	5	42,44	43,45	.040	.034	- 22	0.0	Str g
Y 79	Hll	49.155	- 4.008	3	+ 3.727	4	48,49	45,45	.021	.027	- 34	0.0	Duk g
D 87	Rym	.297	4.002	7	3.704	4	68,67	68,66	.055	.036	+ 35	0.0	Sch i
D 91	Rym	.300	4.007	8	3.718	6	80,79	82,82	.067	.056	+ 32	0.0	Rym i
D 97	Rym	.379	4.036	12	3.729	13	51,47	51,46	.087	.090	+ 46	0.0	Duk g
D 100	Rym	.395	3.979	7	3.696	7	68,69	65,67	.057	.058	+ 45	0.0	Sch i
Y 123	Hll	51.257	- 4.010	3	+ 3.608	4	62,62	62,62	.025	.028	+ 9	0.0	Stp g
Y 129	Stp,Hll	.334	4.022	4	3.626	3	62,62	65,65	.033	.025	+ 15	0.0	Prv g
D 500	Gst	52.110	- 3.999	3	+ 3.584	4	63,63	63,63	.026	.028	+ 21	0.0	Prv g
Y 142	Prv	.115	4.008	2	3.570	2	85,85	85,85	.014	.016	- 31	0.0	Prv g
D 524	Wlf	.268	4.007	2	3.566	3	66,66	66,66	.020	.022	+ 21	0.0	Prv g
D 535	Rym	.320	4.010	4	3.562	4	61,61	63,63	.032	.030	- 31	0.0	Prv g
D 541	Rym	.328	3.995	10	3.548	8	29,29	29,29	.052	.042	+ 36	0.0	Wlf h
D 547	Gst	.339	4.010	8	3.575	7	55,55	55,55	.059	.054	+ 81	0.0	Prv g
Y 148	Prv	.385	4.011	4	3.563	4	29,29	32,32	.021	.020	+ 26	0.0	Prv g
Y 152	Str	.429	4.003	6	3.563	6	33,33	33,33	.036	.034	+ 44	0.0	Stp h
ADS 8706			Σ1692		α CVn								
D 92	Rym	49.300	-14.582	7	-12.956	6	86,86	86,86	.067	.058	+ 50	- 0.5	Rym h
D 95	Rym	.357	14.596	9	12.969	7	66,66	66,66	.073	.059	+ 53	- 0.5	Gst h
D 232	Rym	50.198	-14.594	8	-12.994	7	64,64	64,64	.063	.057	+ 33	- 0.5	Rym i
D 236	Rym	.201	14.567	7	12.987	7	65,65	65,65	.055	.054	+ 16	- 0.5	Rym i
D 380	Rym	51.260	-14.622	13	-12.965	9	32,32	32,32	.072	.050	+ 23	- 0.5	Gst h
D 387	Rym	.299	14.620	11	13.032	12	62,63	63,63	.087	.095	+ 19	- 0.5	Gst h
D 398	Rym	.307	14.603	10	13.014	7	64,64	63,64	.081	.057	+ 27	- 0.5	Gst h
ADS 8841			β800										
D 548	Gst	52.339	+ 5.641	42	- 1.755	26	31,31	34,34	.233	.152	+ 95	0.0	Stp h
D 553	Rym	.429	5.602	16	1.730	17	51,48	49,50	.113	.119	+ 38	0.0	Rym i
ADS 8883			Σ1740										
D 88	Rym	49.297	+25.693	13	+ 6.894	13	65,63	63,65	.106	.106	+ 37	+ 0.3	Gst h
D 98	Rym	.379	25.642	16	6.874	16	66,66	66,66	.146	.126	+ 36	+ 0.3	Gst h
D 233	Rym	50.198	+25.666	12	+ 6.918	10	63,62	63,63	.094	.080	+ 38	+ 0.3	Gst h
D 237	Rym	.201	25.651	11	6.883	10	64,64	65,65	.088	.063	+ 17	+ 0.3	Rym i
D 246	Gst	.305	25.661	11	6.894	11	63,63	63,63	.088	.084	+ 21	+ 0.3	Gst h
D 261	Gst	.376	25.670	14	6.906	11	59,59	59,59	.109	.088	+ 40	+ 0.3	Gst h

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	$\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	$\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 8883 (continued)													
D 377	Gst	51.230	+25″.717	±″.006	+6″.886	±″.007	58,57	59,57	±″.046	±″.050	+ 14	+ 0.3	Krs h
D 381	Rym	.260	25.673	15	6.906	13	64,62	64,65	.123	.102	+ 35	+ 0.3	Gst h
D 410	Gst	.460	25.639	20	6.869	19	66,66	66,66	.163	.154	+ 70	+ 0.3	Gst h
ADS 8891			Σ1744		ζ UMa								
D 101	Rym	49.396	+ 7.036	7	-12.564	7	55,53	53,57	.054	.049	+ 78	+ 0.2	Duk g
D 244	Rym	50.277	+ 7.033	5	-12.580	5	64,64	64,64	.037	.036	+ 6	+ 0.2	Rym i
D 251	Rym	.332	7.045	6	12.547	6	65,65	65,65	.048	.052	+ 11	- 0.4	Rym i
D 258	Rym	.354	7.020	6	12.572	7	65,65	65,65	.051	.059	+ 39	- 0.4	Rym i
D 378	Gst	51.230	+ 7.038	6	-12.614	5	64,64	65,64	.052	.042	+ 50	+ 0.2	Gst h
D 388	Rym	.299	7.039	7	12.629	6	63,63	63,63	.053	.045	+ 34	+ 0.2	Gst h
D 411	Gst	.460	7.009	8	12.607	7	63,63	63,63	.066	.057	+106	+ 0.2	Gst h
D 520	Gst	52.235	+ 7.010	6	-12.580	6	59,59	58,58	.045	.046	+ 87	- 0.4	Wlf h
D 521	Wlf	.241	7.022	8	12.603	9	33,33	33,33	.048	.054	+ 87	+ 0.2	Rym i
D 525	Wlf	.268	7.024	6	12.594	5	66,66	66,66	.045	.042	+ 23	- 0.4	Gst h
D 532	Wlf	.317	7.028	7	12.604	6	65,65	65,65	.053	.046	+ 3	- 0.4	Wlf h
D 536	Rym	.320	7.014	7	12.607	5	66,66	66,66	.059	.042	- 7	+ 0.2	Rym i
D 551	Wlf	.418	7.018	7	12.592	8	66,62	66,66	.054	.065	+ 71	- 0.4	Stp h
ADS 9031			Σ1785										
Y 67	Hll	49.021	+ 1.789	12	- 1.526	12	48,57	49,49	.084	.084	- 62	+ 0.4	Duk g
Y 71	Duk	.038	1.799	6	1.528	6	67,66	68,67	.049	.046	- 24	+ 0.4	Duk g
Y 84	Hll	.204	1.768	7	1.507	7	65,65	66,68	.060	.055	- 30	+ 0.4	Sch i
Y 124	Brd	51.258	+ 1.812	6	- 1.689	5	58,58	64,64	.043	.039	+ 26	+ 0.4	Prv g
Y 124			1.814	4	1.688	5	71,71	71,71	.038	.046		+ 0.4	Stp g
Y 143	Prv	52.115	+ 1.848	6	- 1.799	7	42,42	43,43	.037	.045	- 6	+ 0.4	Prv g
ADS 9134			Σ1805										
Y 85	Hll	49.204	+ 2.589	9	+ 3.985	10	61,59	62,60	.072	.078	+ 2	+ 0.3	Gst h
D 93	Rym	.300	2.544	14	3.965	13	62,58	66,63	.109	.102	+ 15	+ 0.3	Duk g
D 247	Gst	50.305	+ 2.608	15	+ 4.016	14	48,46	39,46	.099	.092	+ 15	+ 0.3	Gst h
D 268	Gst	.449	2.575	15	3.990	13	57,56	57,57	.110	.100	+ 21	+ 0.3	Gst h
D 382	Rym	51.260	+ 2.578	16	+ 3.988	13	64,63	63,62	.127	.104	+ 25	+ 0.3	Gst h
D 389	Rym	.299	2.544	15	3.984	12	49,49	51,51	.103	.086	+ 49	+ 0.3	Prv g
D 489	Gst	52.072	+ 2.540	11	+ 3.948	10	56,56	62,62	.081	.075	+ 31	+ 0.3	Prv g
D 501	Gst	.110	2.603	13	3.970	10	47,46	52,53	.091	.070	+ 24	+ 0.3	Rym i
D 502	Gst	.110	2.578	13	3.963	11	48,50	51,52	.088	.080	+ 74	+ 0.3	Rym i
ADS 9413			Σ1888		ξ Boo								
D 102	Rym	49.396	- 0.234	14	+ 6.044	19	41,39	40,39	.086	.119	+ 27	+ 0.2	Gst h
D 104	Rym	.475	0.268	10	6.097	11	71,71	72,72	.089	.097	+ 63	+ 0.2	Rym h
D 234	Rym	50.198	- 0.319	11	+ 6.160	12	59,58	58,58	.087	.088	- 7	+ 0.2	Gst h
D 238	Rym	.201	0.332	9	6.179	9	60,60	60,60	.070	.073	- 11	+ 0.2	Rym h
D 248	Gst	.305	0.351	9	6.172	8	56,56	58,58	.070	.061	+ 31	+ 0.2	Duk g
D 252	Rym	.332	0.347	8	6.137	9	66,66	66,66	.063	.070	+ 33	+ 0.2	Duk g
D 265	Gst	.444	0.359	17	6.161	15	28,28	28,28	.086	.080	+ 67	+ 0.2	Gst h
D 269	Sch	.450	0.359	12	6.206	13	52,53	54,54	.085	.096	+ 79	+ 0.2	Sch i
D 279	Rym	.512	0.369	9	6.183	11	62,61	61,62	.072	.084	+ 45	+ 0.2	Sch i
D 287	Rym	.526	0.371	16	6.183	15	48,45	43,47	.111	.102	+ 45	+ 0.2	Sch i
D 383	Rym	51.260	- 0.449	12	+ 6.260	10	48,52	60,62	.082	.075	+ 37	+ 0.2	Spo h
D 390	Rym	.299	0.457	10	6.246	8	46 41	58,55	.068	.056	+ 51	+ 0.2	Spo h
D 399	Rym,Gst	.394	0.475	9	6.283	9	61,63	65,63	.073	.069	+ 2	+ 0.2	Gst h
D 401	Str	.424	0.470	9	6.304	7	62,61	63,63	.072	.058	+ 22	+ 0.2	Gst h
D 402	Str	.424	0.501	15	6.282	11	29,29	29,29	.079	.058	+ 52	+ 0.2	Gst h
D 405	Gst	.430	0.477	9	6.230	13	29,29	29,29	.048	.072	- 20	+ 0.2	Prv g
D 406	Gst	.430	0.461	11	6.296	10	61,62	63,63	.088	.078	+ 20	+ 0.2	Gst h
S 642	Str	.443	0.478	6	6.258	6	61,61	60,60	.050	.046	+ 7	+ 0.2	Prv g
S 644	Str,Frd	.454	0.484	6	6.264	5	53,53	51,51	.047	.037	- 50	+ 0.2	Prv g
S 645	Str,Frd	.454	0.477	8	6.264	7	50,50	46,46	.057	.047	- 20	+ 0.2	Prv g
D 412	Gst	.460	0.451	9	6.285	11	54,54	58,58	.063	.081	+ 72	+ 0.2	Prv g
D 419	Rym,Krs	.509	0.470	10	6.274	8	43,43	44,44	.066	.056	+ 53	+ 0.2	Prv g
D 526	Wlf	52.268	- 0.557	5	+ 6.322	4	63,63	63,63	.037	.031	+ 16	+ 0.2	Prv g
D 530	Rym	.290	0.557	7	6.308	7	32,32	33,33	.040	.039	- 44	+ 0.2	Prv g

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	No. of Images Measured in $\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	Mean Error Single Image $\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 9413 (continued)													
D 533	Wlf	52.317	- 0".570	± ".005	+ 6".304	± ".006	66,66	66,66	± ".038	± ".048	+ 15	+ 0.2	Prv g
D 537	Rym	.320	0.577	10	6.302	11	33,33	33,33	.057	.061	- 44	+ 0.2	Rym i
D 542	Rym	.328	0.564	5	6.318	5	64,64	64,64	.039	.042	- 19	+ 0.2	Wlf h
D 549	Gst	.339	0.566	8	6.323	7	62,62	64,64	.066	.056	+ 42	+ 0.2	Prv g
D 552	Wlf	.418	0.588	8	6.345	8	54,54	54,54	.057	.055	+ 43	+ 0.2	Stp h
D 554	Rym	.429	0.583	7	6.342	8	59,59	61,61	.057	.059	0	+ 0.2	Stp h
ADS 9494			Σ1909		44 Boo								
Y 83	Hll	49.155	- 1.693	4	- 0.496	4	44,45	44,44	.027	.030	- 13	0.0	Rym i
Y 87	Duk	.213	1.670	14	0.453	12	28,27	32,34	.073	.067	+ 2	- 0.2	Gst h
ADS 9580			Σ1931										
D 270	Gst	50.510	+ 2.654	16	-13.112	15	52,53	52,52	.115	.108	+ 63	0.0	Gst h
D 301	Gst	.556	2.660	12	13.097	11	52,52	50,50	.090	.079	+ 81	0.0	Stp g
D 306	Gst	.562	2.654	18	13.125	23	29,29	29,29	.096	.125	+ 84	0.0	Rym i
D 407	Gst	51.430	+ 2.652	28	-13.104	23	36,38	36,36	.172	.137	- 10	0.0	Gst h
D 550	Gst	52.339	+ 2.680	25	-13.094	21	37,37	41,42	.152	.138	+ 59	0.0	Stp .
D 555	Rym	.429	2.660	14	13.081	12	62,59	63,63	.107	.091	+ 21	0.0	Rym i
D 556	Rym	.429	2.691	16	13.105	14	64,64	65,65	.124	.109	+ 49	0.0	Rym i
D 559	Rym	.506	2.698	20	13.113	19	30,30	30,30	.111	.105	+ 31	0.0	Stp h
ADS 9626			Σ1938		μ Boo B,C								
Y 86	Hll	49.205	+ 0.852	8	+ 1.541	10	42,38	40,42	.053	.061	- 17	+ 0.5	Duk g
Y 89	Duk	.276	0.887	5	1.600	6	59,57	62,59	.039	.050	- 21	+ 0.5	Duk g
Y 125	Brd	51.258	+ 0.864	10	+ 1.637	9	23,24	27,26	.051	.044	- 4	+ 0.5	Spo h
ADS 9909			Σ1998 AB,C		ξ Sco AB,C								
D 103	Rym	49.431	+ 6.209	15	+ 4.321	12	58,56	69,67	.116	.103	+ 39	- 0.1	Sch i
D 263	Gst	50.442	+ 6.154	13	+ 4.340	12	50,50	50,50	.093	.087	+ 23	- 0.1	Sch i
D 266	Gst	.444	6.126	14	4.324	13	56,54	55,54	.104	.094	+ 43	- 0.1	Gst h
D 280	Rym	.513	6.118	10	4.371	8	61,61	61,61	.078	.062	+ 35	- 0.1	Sch i
D 302	Gst	.556	6.131	14	4.353	12	58,58	57,58	.105	.089	+ 90	- 0.1	Gst h
D 391	Rym	51.299	+ 6.156	13	+ 4.408	10	58,50	60,62	.101	.077	+ 17	- 0.1	Gst h
D 413	Gst	.460	6.142	17	4.379	16	63,62	63,63	.137	.128	+ 45	- 0.1	Gst h
ADS 9910			Σ1999										
D 266	Gst	50.444	+11.338	22	- 1.946	22	56,51	56,56	.160	.162	+ 43	+ 0.5	Gst h
D 280	Rym	.513	11.321	13	1.952	12	66,66	66,66	.106	.097	+ 35	+ 0.5	Sch i
D 302	Gst	.556	11.341	19	1.956	15	56,55	56,55	.143	.112	+ 90	+ 0.5	Gst h
ADS 9979			Σ2032		σ CrB								
Y 81	Hll	49.156	- 4.311	4	- 4.080	4	58,60	59,59	.034	.033	- 43	0.0	Sch i
D 109	Rym	.530	4.318	13	4.093	12	58,59	59,59	.099	.096	+ 62	0.0	Gst h
D 110	Rym,Gst	.549	4.301	12	4.039	10	51,51	56,55	.085	.076	+ 38	0.0	Duk g
D 118	Rym	.592	4.276	11	4.025	12	58,61	59,61	.087	.094	+ 52	0.0	Duk g
D 254	Rym	50.332	- 4.328	10	- 4.080	9	63,63	65,64	.080	.076	+ 15	0.0	Duk g
D 256	Gst	.346	4.372	14	4.064	13	57,56	58,57	.104	.100	+ 22	0.0	Duk g
D 264	Gst	.442	4.342	14	4.066	13	61,61	63,61	.107	.103	+ 46	0.0	Gst h
D 271	Gst	.510	4.336	10	4.066	8	57,57	57,57	.076	.063	+ 40	0.0	Sch i
D 392	Rym	51.299	- 4.353	13	- 4.072	13	51,47	56,58	.089	.098	+ 35	0.0	Spo h
S 646	Dav,Str	.454	4.421	10	4.091	10	48,48	51,51	.068	.069	- 66	0.0	Prv g
S 647	Dav,Str	.454	4.410	9	4.070	8	62,62	73,73	.071	.064	- 36	0.0	Stp g
S 653	Str	.460	4.418	6	4.093	4	67,67	71,71	.049	.036	+ 15	0.0	Prv g
Y 144	Prv	52.115	- 4.405	9	- 4.075	11	32,32	31,31	.053	.063	- 51	0.0	Prv g
Y 149	Prv	.386	4.430	7	4.086	6	31,31	31,31	.039	.036	- 65	0.0	Prv g
D 558	Rym	.500	4.405	10	4.094	12	63,64	64,63	.081	.094	+ 18	0.0	Wlf h
D 560	Rym	.506	4.418	12	4.054	14	68,68	66,66	.095	.110	+ 13	0.0	Stp h
D 564	Wlf	.511	4.417	9	4.102	10	71,70	70,69	.073	.084	+ 37	0.0	Wlf h
Y 153	Str,Hll	.525	4.442	21	4.087	20	27,26	33,33	.110	.112	+ 6	0.0	Stp h
ADS 10345			Σ2130		μ Dra								
Y 44	Str	48.424	+ 2.130	4	+ 0.004	3	77,75	67,68	.034	.023	- 2	+ 0.1	Sch i
Y 45	Str	.560	2.141	4	0.033	3	74,74	75,75	.034	.025	0	+ 0.1	Rym h
Y 49	Str	.579	2.119	9	0.015	6	56,50	51,53	.065	.045	+ 1	+ 0.1	Rym i

Plate No.	Obs.	Date 1900+	Δαcosδ	m.e.	Δδ	m.e.	No. of Images Measured in Δαcosδ	Δδ	Mean Error Single Image Δαcosδ	Δδ	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 10345 (continued)													
Y 90	Duk	49.276	+ 2"124	±"005	+ 0"053	±"004	51,51	54,52	±"032	±"029	- 64	+ 0.1	Duk g
Y 91	Str	.538	2.137	3	0.065	2	72,72	72,72	.024	.019	- 34	+ 0.1	Gst h
Y 92	Str	.538	2.145	2	0.069	2	57,56	58,57	.018	.016	- 2	+ 0.1	Sch i
Y 111	Hll	50.480	+ 2.134	5	+ 0.114	3	78,78	78,78	.044	.030	- 14	+ 0.1	Gst h
Y 113	Hll	.510	2.142	3	0.107	2	62,62	59,59	.025	.018	- 12	+ 0.1	Stp g
Y 126	Brd	51.258	+ 2.089	5	+ 0.131	4	64,64	64,64	.033	.026	- 40	+ 0.1	Stp g
Y 133	Hll,Jns,Prv	.561	2.134	3	0.149	2	44,44	47,47	.018	.015	+ 4	+ 0.1	Prv g
Y 134	Hll	.564	2.148	3	0.148	2	25,25	24,24	.013	.012	- 24	+ 0.1	Prv g
Y 150	Prv	52.386	+ 2.131	3	+ 0.201	3	29,29	29,29	.017	.01[illegible]	- 73	+ 0.1	Prv g
Y 154	Str	.585	2.114	7	0.213	5	48,48	48,48	.050	.036	+ 3	+ 0.1	Wlf h
ADS 10394			Σ2135										
D 121	Rym	49.642	- 0.683	22	- 7.691	22	41,40	42,41	.140	.144	+ 51	- 0.5	Rym i
D 129	Rym	.647	0.652	14	7.753	10	61,61	59,59	.112	.077	+ 69	- 0.5	Gst h
D 137	Rym	.664	0.657	23	7.695	14	30,29	31,31	.125	.078	+ 76	- 0.5	Duk g
D 272	Gst	50.510	- 0.685	11	- 7.684	9	54,54	56,56	.084	.067	+ 76	- 0.5	Sch i
D 295	Rym	.551	0.654	11	7.691	8	56,56	53,53	.080	.055	+ 31	- 0.5	Stp g
D 307	Gst	.562	0.702	12	7.706	12	54,54	54,54	.089	.090	+ 94	- 0.5	Stp g
D 415	Rym,Krs	51.490	- 0.710	27	- 7.684	21	46,38	39,40	.176	.132	+ 38	- 0.5	Gst h
D 434	Gst	.583	0.731	13	7.702	10	43,43	55,55	.087	.074	+100	- 0.5	Prv g
ADS 10759			Σ2241		ψ Dra								
D 11	Rym	48.517	+ 8.030	12	+29.272	14	78,78	78,78	.109	.122	0	+ 1.2	Rym h
D 18	Rym	.571	7.949	18	29.199	13	69,69	80,80	.148	.118	- 17	+ 1.2	Rym h
D 23	Rym	.634	7.997	20	29.202	11	67,67	85,87	.162	.102	+ 67	+ 1.2	Rym h
D 31	Rym	.648	7.988	10	29.246	8	89,89	89,89	.095	.077	+ 76	+ 1.2	Rym h
D 122	Rym	49.642	+ 8.051	12	+29.286	10	62,62	61,62	.093	.080	+ 53	+ 0.2	Gst h
D 126	Rym	.645	8.009	13	29.313	14	60,61	60,60	.102	.105	+ 62	+ 0.2	Gst h
D 134	Rym	.661	7.977	8	29.297	9	65,65	65,65	.067	.075	+ 74	+ 0.2	Rym i
D 273	Gst	50.510	+ 7.998	9	+2[illegible].271	11	53,53	53,53	.066	.082	+ 88	+ 0.2	Sch i
D 303	Gst	.557	8.039	9	29.235	10	65,65	65,65	.071	.081	+ 80	+ 0.2	Rym i
D 314	Gst	.636	7.931	9	29.290	10	61,61	61,60	.071	.075	+ 11	+ 0.2	Rym i
D 393	Rym	51.299	+ 7.993	9	+29.241	9	58,57	59,59	.067	.067	- 8	+ 0.2	Spo h
D 416	Rym,Krs	.490	8.086	12	29.250	11	66,66	66,66	.095	.089	+ 54	+ 0.2	Rym i
D 417	Gst	.499	7.974	19	29.262	22	33,33	33,33	.109	.126	+130	+ 0.2	Rym i
D 561	Rym	52.506	+ 8.037	13	+29.275	14	66,66	66,66	.106	.115	+ 49	+ 0.2	Stp h
D 565	Rym	.563	7.996	7	29.259	7	67,67	67,67	.056	.055	+ 69	+ 0.2	Rym i
D 570	Stp	.580	7.968	8	29.277	7	60,60	60,60	.059	.056	+ 56	+ 0.2	Stp h
D 574	Rym	.582	8.005	8	29.256	8	65,64	64,64	.061	.062	+ 32	+ 0.2	Stp h
ADS 11046			Σ2272		70 Oph								
S 552	Str	47.438	+ 5.909	8	- 1.922	7	62,63	61,60	.066	.058	- 25	- 0.2	Duk g
S 595	Str	48.615	+ 5.850	8	- 1.796	7	57,55	59,58	.059	.055	- 28	- 0.2	Duk g
S 596	Str	.615	5.833	10	1.798	8	65,64	65,65	.076	.063	- 5	- 0.2	Duk g
S 603	Str	.620	5.840	9	1.792	10	47,43	49,47	.063	.067	- 39	- 0.2	Duk g
S 604	Str	.620	5.795	9	1.807	9	70,75	75,73	.080	.079	- 15	- 0.2	Duk g
D 112	Rym,Gst	49.549	+ 5.739	9	- 1.630	7	61,62	63,63	.074	.058	+ 78	- 0.2	Duk g
D 123	Rym	.642	5.723	10	1.650	8	63,63	63,63	.079	.063	+ 68	- 0.2	Rym i
D 130	Rym	.647	5.756	16	1.661	12	51,50	51,47	.111	.086	+ 60	- 0.2	Rym i
S 606	Str	.674	5.768	8	1.624	6	63,63	64,65	.061	.050	+ 22	- 0.2	Duk g
S 607	Str	.675	5.743	10	1.606	9	52,57	53,57	.071	.070	+ 48	- 0.2	Duk g
S 619	Str	.694	5.752	8	1.613	7	64,67	67,67	.063	.055	+ 32	- 0.2	Duk g
S 620	Str	.694	5.750	10	1.609	8	59,60	58,59	.081	.057	+ 55	- 0.2	Duk g
S 267	Gst	50.445	+ 5.670	15	- 1.521	[illegible]4	53,53	52,53	.107	.099	+ 29	- 0.2	Gst h
D 274	Gst	.510	5.641	12	1.520	10	38,44	53,55	.075	.077	+103	- 0.2	Spo h
[illegible] 274			5.645	9	1.502	9	57,55	55,56	.066	.067		- 0.2	Sch i
D 294	Sch	.543	5.662	16	1.522	18	38,35	40,35	.095	.110	+ 58	- 0.2	Sch i
S 632	Str	.603	5.686	15	1.504	10	32,32	40,38	.084	.064	- 13	- 0.2	Str h
S 633	Str	.603	5.692	12	1.514	8	31,32	34,33	.065	.049	+ 7	- 0.2	Spo h
S 639	Str	.606	5.722	15	1.511	16	18,21	26,23	.065	.077	- 14	- 0.2	Spo h
S 640	Str	.606	5.704	17	1.520	13	26,25	27,26	.085	.069	+ 22	- 0.2	Spo h

Plate No.	Obs.	Date 1900+	Δαcosδ	m.e.	Δδ	m.e.	No. of Images Measured in Δαcosδ	Δδ	Mean Error Single Image Δαcosδ	Δδ	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 11646 (continued)													
D 403	Gst	51.425	+ 5".616	± 0".010	- 1".404	± 0".010	51,50	58,57	± 0".074	± 0".075	+ 50	- 0.2	Spc h
S 643	Str	.444	5.629	7	1.389	4	54,54	57,57	.050	.031	- 26	- 0.2	Prv g
S 654	Str,Frd	.460	5.600	10	1.383	8	48,48	48,48	.066	.054	- 15	- 0.2	Stp g
S 655	Str,Frd	.460	5.613	6	1.378	5	51,51	47,47	.046	.032	+ 7	- 0.2	Prv g
D 414	Gst	.460	5.618	14	1.412	12	31,31	30,30	.075	.068	+141	- 0.2	Prv g
S 661	Frd	.501	5.599	7	1.362	6	43,43	45,45	.045	.041	+ 58	- 0.2	Prv g
S 662	Frd	.501	5.651	11	1.372	12	16,16	16,16	.043	.049	+ 86	- 0.2	Prv g
D 420	Gst	.537	5.610	5	1.406	5	61,61	61,61	.042	.041	+ 21	- 0.2	Prv g
D 435	Gst	.583	5.610	5	1.421	4	63,63	64,64	.037	.032	+ 92	- 0.2	Prv g
D 442	Rym	.605	5.544	11	1.395	9	47,47	44,44	.077	.058	+ 12	- 0.2	Prv g
D 557	Gst	52.495	+ 5.497	16	- 1.248	14	40,40	42,42	.098	.091	+ 44	- 0.2	Stp h
S 671	Str	.558	5.487	14	1.258	11	39,38	41,41	.085	.071	- 40	- 0.2	Wlf h
S 672	Str	.558	5.494	10	1.235	6	52,54	57,57	.072	.046	- 16	- 0.2	Wlf h
S 679	Str,Frd	.563	5.489	23	1.230	19	28,28	30,30	.123	.106	- 22	- 0.2	Stp h
S 680	Str,Frd	.563	5.462	12	1.243	11	42,42	43,43	.080	.074	- 5	- 0.2	Wlf h
S 683	Str,Frd	.566	5.495	16	1.251	16	36,35	33,33	.095	.089	- 14	- 0.2	Stp h
D 587	Stp	.621	5.480	9	1.234	9	61.61	59,60	.071	.071	- 11	- 0.2	Rym i
D 605	Wlf	.648	5.498	7	1.233	6	65,65	65,65	.055	.047	+ 6	- 0.2	Stp h
D 613	Rym	.659	5.482	11	1.247	10	61,61	62,62	.084	.081	+ 24	- 0.2	Stp h
ADS 11061			Σ2308		41-40 Dra								
D 24	Rym	48.634	-15.450	10	-11.637	8	70,69	71,71	.081	.071	+ 91	+ 0.3	Rym h
D 27	Rym	.645	15.426	8	11.698	8	87,87	87,87	.076	.071	+ 72	+ 0.3	Rym h
D 37	Rym	.651	15.421	10	11.778	8	85,87	87,87	.089	.077	+100	+ 0.3	Rym h
D 40	Rym	.708	15.405	8	11.790	9	83,84	84,84	.077	.086	+ 87	+ 0.3	Rym h
D 45	Rym	.801	15.412	7	11.791	9	85,85	85,85	.065	.081	+109	+ 0.3	Rym h
D 315	Gst	50.636	-15.414	11	-11.751	16	28,28	28,28	.057	.082	+ 38	+ 0.3	Rym i
D 418	Gst	51.499	-15.440	12	-11.742	12	66,66	66,66	.099	.098	+ 97	+ 0.3	Gst h
D 424	Gst	.559	15.431	7	11.738	8	66,66	66,66	.055	.066	+ 23	+ 0.3	Gst h
D 427	Rym	.567	15.386	7	11.746	7	65,65	65,65	.054	.060	- 17	+ 0.3	Gst h
ADS 11089			Σ2280		100 Her								
D 32	Rym	48.648	- 0.692	7	-14.147	8	70,70	70,70	.059	.063	+ 99	0.0	Sch i
D 44	Rym	.787	0.710	8	14.158	6	85,85	85,85	.070	.057	+125	0.0	Rym h
D 296	Sch	50.551	- 0.690	8	-14.175	7	59,60	61,61	.061	.058	+ 48	0.0	Rym i
D 309	Gst	.562	0.674	10	14.213	12	57,57	57,57	.079	.094	+124	0.0	Gst h
D 312	Sch	.606	0.683	7	14.159	8	61,61	63,63	.055	.066	+ 69	0.0	Stp g
D 400	Gst	51.411	- 0.728	10	-14.224	12	62,62	61,62	.080	.094	+ 33	0.0	Gst h
D 404	Gst	.425	0.725	9	14.225	8	61,62	63,63	.068	.067	+ 86	0.0	Gst h
D 421	Gst	.537	0.674	5	14.189	5	60,60	60,60	.041	.039	+ 61	0.0	Gst h
D 436	Gst	.583	0.687	7	14.185	7	66,66	66,66	.056	.058	+119	0.0	Gst h
D 569	Gst	52.569	- 0.667	7	-14.205	7	58,58	59,59	.056	.052	+ 37	0.0	Stp h
D 575	Rym	.583	0.630	6	14.195	6	67,67	67,67	.051	.053	+ 45	0.0	Rym i
D 606	Wlf	.648	0.672	8	14.198	9	37,37	37,37	.049	.052	+ 42	0.0	Stp h
D 614	Rym	.659	0.659	6	14.196	6	66,66	66,66	.046	.051	+ 72	0.0	Rym i
ADS 11483			OΣ358										
Y 93	Str	49.538	+ 0.140	8	- 1.750	11	47,38	41,39	.049	.071	- 44	+ 0.2	Gst h
Y 114	Hll	50.510	+ 0.161	7	- 1.779	8	48,48	44,44	.050	.050	- 60	+ 0.2	Stp g
Y 135	Hll	51.564	+ 0.162	3	- 1.825	3	63,63	65,65	.023	.026	- 47	+ 0.2	Prv g
ADS 11632			Σ2398										
S 553	Str	47.438	+ 5.705	13	-15.025	11	73,65	77,70	.108	.091	- 15	+ 0.5	Duk g
D 14	Rym	48.550	+ 5.674	22	-14.958	21	54,57	58,55	.163	.155	+120	+ 0.5	Duk g
D 17	Rym	.569	5.652	13	14.975	12	61,61	61,61	.102	.092	- 62	+ 0.5	Duk g
S 579	Str	.599	5.650	23	14.958	21	32,31	34,30	.131	.121	+ 9	+ 0.5	Duk g
S 600	Str	.618	5.627	18	14.996	23	25,28	27,27	.136	.121	+ 28	+ 0.5	Duk g
S 605	Str	.621	5.605	13	14.993	12	43,44	44,44	.088	.082	+ 18	+ 0.5	Duk g
D 33	Rym	.648	5.613	10	15.000	11	89,89	89,89	.096	.105	+111	+ 0.5	Duk g
D 38	Rym	.667	5.610	10	14.985	10	70,70	70,70	.081	.087	+ 54	+ 0.5	Duk g
D 115	Gst	49.565	+ 5.531	24	-15.029	47	29,29	29,29	.129	.255	+ 45	+ 0.5	Gst h
D 127	Rym	.645	5.537	14	15.026	13	64,64	65,64	.110	.103	+ 66	+ 0.5	Gst h
D 138	Rym	.707	5.498	15	15.029	14	63,63	61,63	.121	.112	+ 12	+ 0.5	Duk g
D 143	Rym	.721	5.543	14	14.995	15	65,65	65,65	.112	.119	+ 2	+ 0.5	Gst h

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	$\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	$\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 11632 (continued)													
S 634	Str	50.603	+ 5".454	± ".014	-14".939	± ".014	41,41	43,43	± ".090	± ".095	- 3	+ 0.5	Stp g
D 319	Gst	.674	5.453	14	14.955	12	42,42	41,41	.094	.075	+ 59	+ 0.5	Stp g
D 408	Gst	51.430	+ 5.400	15	-14.953	14	64,65	65,65	.119	.115	+ 40	+ 0.5	Gst h
D 409	Gst	.450	5.422	17	14.962	16	65,65	65,65	.139	.130	+107	+ 0.5	Gst h
S 648	Frd,Str	.455	5.410	15	14.913	12	25,25	25,25	.076	.061	- 73	+ 0.5	Wlf h
D 425	Gst	.559	5.369	15	14.894	12	63,62	66,66	.116	.095	+ 58	+ 0.5	Rym i
D 425			5.395	12	14.919	11	47,47	48,47	.080	.075		+ 0.5	Wlf h
D 462	Gst	.712	5.357	30	14.946	29	30,30	31,31	.162	.161	+ 18	+ 0.5	Rym i
D 463	Rym	.714	5.380	10	15.064	12	50,49	50,49	.074	.088	+ 55	+ 0.5	Wlf h
D 463			5.354	12	15.010	13	60,60	64,64	.090	.105		+ 0.5	Rym i
D 463			5.377	9	15.010	8	63,63	64.64	.070	.065		+ 0.5	Prv g
S 673	Str,Frd	52.558	5.305	14	14.880	13	41,41	41,41	.092	.085	- 14	+ 0.5	Rym i
D 566	Rym	.564	5.335	13	14.904	12	66,66	67,67	.109	.100	+ 83	+ 0.5	Rym i
S 684	Str,Frd	.566	5.280	33	14.904	26	24,24	25,27	.160	.135	- 10	+ 0.5	Rym i
D 584	Rym	.602	5.325	12	14.906	13	67,67	67,67	.097	.107	+ 45	+ 0.5	Rym i
D 610	Stp	.656	5.342	14	14.909	14	33,33	33,33	.082	.081	+ 68	+ 0.5	Rym i
D 615	Stp	.675	5.317	13	14.900	16	29,29	30,30	.072	.089	+ 23	+ 0.5	Rym i
ADS 11635			Σ2382		ϵ^1Lyr								
Y 50	Str	48.580	+ 0.166	8	+ 2.809	11	39,39	38,38	.050	.069	- 51	+ 1.2	Gst h
Y 51	Str	.580	0.156	10	2.880	17	30,29	34,29	.052	.093	- 10	+ 1.2	Gst h
Y 55	Duk	.623	0.167	10	2.829	8	41,34	39,43	.059	.052	- 49	+ 1.2	Duk g
Y 94	Str	49.538	+ 0.135	9	+ 2.864	8	44,45	53,51	.058	.057	- 17	+ 1.2	Gst h
Y 94			0.164	8	2.829	5	24,24	30,30	.038	.025		+ 1.2	Prv g
Y 116	Hll	50.510	+ 0.124	10	+ 2.834	7	55,54	52,52	.070	.052	+ 9	+ 0.2	Gst h
ADS 11635			Σ2383		ϵ^2Lyr								
Y 50	Str	48.580	+ 2.078	10	- 0.601	8	30,29	30,36	.056	.046	- 51	+ 0.2	Str g
Y 51	Str	.580	2.045	12	0.597	8	35,32	28,28	.068	.040	- 10	+ 0.2	Gst h
Y 55	Duk	.623	2.138	6	0.612	6	65,63	65,60	.048	.045	- 49	+ 0.2	Duk g
Y 94	Str	49.538	+ 2.115	7	- 0.578	6	55,48	49,53	.050	.044	- 17	+ 0.2	Gst h
Y 94			2.138	3	0.585	3	41,41	34,34	.017	.019		+ 0.2	Prv g
Y 112	Hll	50.480	+ 2.175	4	- 0.569	3	64,64	68,68	.033	.027	- 51	+ 0.2	Stp g
Y 115	Hll	.510	2.152	2	0.578	3	41,41	49,49	.014	.022	- 33	+ 0.2	Prv g
Y 130	Str	51.531	+ 2.180	2	- 0.564	2	46,46	46,46	.017	.015	- 28	+ 0.2	Prv g
Y 136	Hll	.564	2.181	2	0.571	2	66,66	65,65	.019	.018	- 26	+ 0.2	Prv g
Y 151	Brd	52.386	+ 2.187	4	- 0.539	4	27,27	27,27	.019	.019	-103	+ 0.2	Prv g
Y 155	Str	.585	2.188	9	0.549	15	20,20	21,21	.039	.069	- 55	+ 0.2	Stp h
ADS 12169			Σ2486										
D 9	Rym	48.514	- 4.590	12	- 7.016	15	62,65	65.65	.099	.121	+ 6	+ 0.2	Gst h
D 15	Rym	.550	4.645	11	7.075	12	58,59	59.59	.087	.089	+183	+ 0.2	Gst h
D 19	Rym	.572	4.651	8	7.045	8	79,79	79,79	.073	.067	- 81	+ 0.2	Rym h
D 25	Rym	.634	4.648	9	7.051	9	84,84	85,85	.081	.080	+ 79	+ 0.2	Rym h
D 139	Rym	49.708	- 4.605	9	- 7.069	9	64,65	65,66	.070	.075	+ 30	+ 0.2	Duk g
D 140	Rym	.716	4.586	16	7.066	18	63.62	63,63	.126	.143	+ 38	+ 0.2	Duk g
D 144	Rym	.721	4.588	9	7.089	10	65,65	65,65	.075	.081	+ 13	+ 0.2	Gst h
D 275	Gst	50.510	- 4.595	11	- 7.050	11	55,52	55,55	.080	.079	+ 64	+ 0.2	Sch i
D 283	Sch	.524	4.608	10	7.055	7	50,50	54,54	.070	.052	+ 45	+ 0.2	Stp g
D 288	Rym	.532	4.595	7	7.056	9	64,64	65,65	.056	.071	+ 7	+ 0.2	Stp g
D 297	Sch	.551	4.603	10	7.060	8	57,57	59,59	.074	.060	+ 38	+ 0.2	Stp g
D 304	Gst	.557	4.593	11	7.059	11	47,47	46,46	.072	.075	+ 36	+ 0.2	Stp g
D 422	Rym,Krs	51.548	- 4.588	5	- 7.051	5	65,65	65,65	.044	.040	+ 37	+ 0.2	Prv g
D 428	Gst	.572	4.597	6	7.060	7	26,26	26,26	.030	.037	+ 45	+ 0.2	Prv g
D 437	Gst	.583	4.636	6	7.036	5	64,64	64,64	.047	.038	+ 42	+ 0.2	Prv g
D 456	Gst	.709	4.569	10	7.048	7	48,48	49,49	.071	.046	+ 34	+ 0.2	Rym i
D 562	Rym	52.506	- 4.586	8	- 7.074	8	67,66	67,67	.064	.069	- 1	+ 0.2	Stp h
D 581	Gst	.599	4.578	8	7.063	7	66,66	65,65	.066	.058	+ 20	+ 0.2	Stp h
D 588	Gst	.626	4.566	7	7.059	7	67,67	67,67	.058	.056	+ 82	+ 0.2	Stp h
D 607	Wlf	.648	4.563	7	7.049	8	56,56	56.56	.055	.066	+ 12	+ 0.2	Stp h
ADS 12815			Σ46 App I		16 Cyg								
S 554	Str	47.438	+27.895	10	-27.118	10	64,64	64,64	.077	.084	- 32	+ 0.3	Duk g

Plate No.	Obs.	Date 1900+	Δαcosδ	m.e.	Δδ	m.e.	No. of Images Measured in Δαcosδ	Δδ	Mean Error Single Image Δαcosδ	Δδ	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 12815 (continued)													
S 559	Str	47.458	+27″884	±″012	-27″108	±″014	68,68	68,68	±″100	±″113	+ 2	+ 0.3	Duk g
Y 42	Str	.602	27.883	13	27.095	12	25,28	29,25	.067	.062	- 25	+ 0.3	Gst h
D 10	Rym	48.514	+27.874	16	-27.151	12	37,37	38,37	.098	.074	+ 43	+ 0.3	Rym h
D 16	Rym	.550	27.877	19	27.124	11	84,71	82,82	.168	.104	+194	+ 0.3	Rym h
D 20	Rym	.572	27.924	13	27.126	10	79,79	81,81	.114	.094	- 9	+ 0.3	Rym h
S 580	Str	.599	27.905	12	27.106	15	66,66	66,67	.100	.121	0	+ 0.3	Duk g
S 588	Str	.610	27.931	15	27.090	15	60,57	61,60	.113	.117	- 12	+ 0.3	Duk g
S 601	Str	.618	27.914	16	27.123	17	59,61	59,61	.120	.131	+ 8	+ 0.3	Duk g
Y 56	Duk	.6[illegible]3	27.916	8	27.102	7	62,62	62,61	.060	.052	- 53	+ 0.3	Gst h
Y 57	Hil	.645	27.912	13	27.135	10	36,40	35,36	.080	.062	- 9	+ 0.3	Gst h
D 28	Rym	.645	27.872	11	27.151	9	88,88	88,88	.104	.083	+ 41	+ 0.3	Rym h
D 113	Rym	49.549	+27.935	10	-27.141	12	64,64	64,64	.078	.095	+ 14	+ 0.3	Gst h
D 124	Rym	.642	27.969	13	27.169	11	62,62	62,63	.103	.087	+ 16	+ 0.3	Gst h
D 131	Rym	.647	27.959	12	27.188	11	63,63	63,63	.094	.086	+ 17	+ 0.3	Gst h
D 135	Rym	.661	27.948	12	27.149	10	65,65	65,65	.098	.078	+ 11	+ 0.3	Gst h
D 276	Gst	50.510	+27.941	10	-27.134	9	57,57	56,57	.075	.071	+ 68	+ 0.3	Sch i
D 281	Rym	.513	27.945	10	27.129	9	65,65	65,65	.078	.076	+ 22	+ 0.3	Sch i
D 289	Rym	.532	27.932	10	27.132	9	64,64	62,62	.077	.072	+ 11	+ 0.3	Stp g
D 290	Gst	.535	27.936	9	27.131	10	56,53	53,53	.063	.073	+ 40	+ 0.3	Sch i
D 305	Gst	.557	27.958	17	27.186	19	29,29	29,29	.092	.103	+ 52	+ 0.3	Rym i
S 635	Str	.603	27.958	11	27.100	12	69,69	69,69	.095	.101	- 4	+ 0.3	Stp g
S 636	Str	.603	27.927	11	27.099	13	66,66	66,66	.088	.103	+ 15	+ 0.3	Stp g
S 649	Frd,Str	51.455	+27.950	8	-27.131	13	61,61	58,61	.066	.097	- 41	+ 0.3	Gst h
S 650	Frd,Str	.455	27.943	11	27.134	14	63,62	61,67	.085	.112	- 20	+ 0.3	Gst h
S 656	Frd,Str	.460	28.018	13	27.131	12	62,63	66,64	.105	.094	+ 1	+ 0.3	Krs h
D 423	Rym,Krs	.548	27.948	7	27.136	6	63,62	63,63	.054	.045	+ 47	+ 0.3	Gst h
D 432	Krs	.581	27.987	8	27.146	8	63,63	63,63	.059	.063	+ 2	+ 0.3	Gst h
D 457	Gst	.709	27.961	5	27.132	7	67,67	67,67	.042	.057	+ 52	+ 0.3	Rym i
S 668	Str	52.552	+27.970	12	-27.142	15	60,60	63,63	.090	.116	- 7	+ 0.3	Wlf h
S 675	Str,Frd	.558	27.951	14	27.148	17	73,73	73,73	.122	.146	- 8	+ 0.3	Stp h
D 571	Stp	.580	27.961	7	27.146	8	64,64	64,64	.059	.067	- 51	+ 0.3	Wlf h
D 593	Wlf	.632	27.999	16	27.137	15	32,32	32,32	.088	.082	+ 57	+ 0.3	Stp h
D 609	Wlf	.648	27.972	9	27.176	8	61,61	61,61	.069	.059	+ 60	+ 0.3	Wlf h
ADS 14279			Σ2727		γ Del								
S 589	Str	48.610	-10.119	7	- 0.213	7	59,61	63,65	.053	.053	- 34	0.0	Duk g
S 597	Str	.615	10.132	6	0.216	8	62,64	63,64	.051	.060	- 50	0.0	Duk g
S 602	Str	.618	10.135	14	0.204	16	34,34	34,34	.080	.095	- 3	0.0	Duk g
Y 95	Duk	49.538	-10.127	6	- 0.202	6	65,64	65,65	.048	.045	- 47	0.0	Sch i
D 125	Rym	.642	10.097	6	0.207	7	63,63	63,63	.052	.059	+ 46	0.0	Rym i
D 132	Rym	.648	10.094	7	0.204	8	63,63	63,53	.056	.065	+ 62	0.0	Rym i
D 136	Rym	.661	10.100	8	0.216	6	65,65	65,65	.068	.046	- 13	0.0	Rym i
D 284	Sch	50.524	-10.116	7	- 0.231	6	61,61	61,61	.055	.049	+ 44	0.0	Sch i
D 291	Gst	.535	10.112	7	0.220	6	53,53	53,53	.051	.040	+ 12	0.0	Stp g
D 298	Sch	.551	10.105	7	0.222	8	54,54	60,60	.052	.061	+ 20	0.0	Stp g
D 320	Gst	.682	10.086	8	0.214	6	58,57	58,58	.059	.048	+ 9	0.0	Gst h
D 430	Gst	51.573	-10.073	10	- 0.230	10	27,27	27,27	.051	.050	+ 56	0.0	Prv g
D 439	Gst	.583	10.104	6	0.215	5	62,62	62,62	.049	.037	+ 27	0.0	Prv g
D 443	Rym	.605	10.076	9	0.223	11	64,64	64,64	.073	.090	- 37	0.0	Rym i
D 465	Gst	.775	10.075	5	0.211	6	54,55	55,55	.038	.042	+ 33	0.0	Gst h
D 577	Rym	52.583	-10.057	8	- 0.240	10	31,31	31,31	.043	.054	+ 15	0.0	Stp h
D 583	Gst	.599	10.053	6	0.242	5	65,65	65,65	.050	.043	+ 50	0.0	Rym i
D 594	Wlf	.632	10.057	9	0.216	8	65,65	64,64	.073	.065	+ 39	0.0	Stp h
D 602	Stp	.646	10.052	5	0.228	6	66,66	66,66	.042	.046	- 20	0.0	Wlf h
ADS 15076			Σ2804										
Y 15	Str	46.884	- 0.741	13	+ 2.950	18	29,32	27,29	.074	.098	+ 17	+ 0.3	Rym i
S 592	Str	48.610	- 0.818	11	+ 2.923	10	58,59	65,63	.086	.081	+ 10	+ 0.3	Duk g
Y 59	Str	.676	.799	6	2.940	6	69,63	70,63	.050	.049	+ 38	+ 0.3	Duk g
Y 97	Hll	49.732	- 0.781	5	+ 2.932	8	37,37	41,41	.031	.048	- 13	+ 0.3	Rym i
ADS 15600			Σ2863		ξ Cep								
D 120	Rym	49.640	- 7.323	7	+ 1.149	8	64,65	63,65	.057	.062	+ 35	0.0	Duk g

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	$\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	$\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 15600 (continued)													
D 128	Gst	49.645	- 7".319	±".007	+ 1".146	±".006	62,62	64,64	±".058	±".047	+117	0.0	Rym i
D 133	Rym	.648	7.346	8	1.154	7	65,65	65,64	.061	.057	+ 18	0.0	Rym i
D 153	Gst	.782	7.355	7	1.138	7	64,64	64,64	.059	.058	+ 27	0.0	Rym i
D 322	Rym	50.713	- 7.354	12	+ 1.122	9	62,62	62,62	.092	.072	+ 6	0.0	Gst h
D 324	Gst	.773	7.343	12	1.149	9	53,53	53,53	.091	.064	+ 25	0.0	Rym i
D 444	Rym	51.605	- 7.382	7	+ 1.144	7	65,65	65,65	.058	.059	- 6	0.0	Rym i
D 447	Krs	.641	7.400	6	1.141	5	65,64	64,64	.051	.042	+ 9	0.0	Gst h
D 458	Gst	.709	7.388	8	1.145	9	57,55	55,55	.063	.065	+ 13	0.0	Wlf h
D 466	Gst	.775	7.401	4	1.141	4	66,66	66,66	.031	.034	+ 23	0.0	Gst h
ADS 15971			Σ2909		ζ Aqr								
Y 22	Str	46.964	- 2.240	12	+ 0.395	8	21,23	18,20	.054	.035	+ 76	+ 0.2	Str g
S 593	Str	48.610	- 2.247	9	+ 0.335	10	23,23	30,30	.043	.052	+ 33	+ 0.2	Stp g
Y 52	Hll	.621	2.267	9	0.336	7	29,27	29,31	.046	.037	- 5	+ 0.2	Sch i
Y 60	Str	.676	2.224	10	0.335	9	36,31	27,32	.058	.049	+ 20	+ 0.2	Duk g
Y 98	Hll	49.732	2.210	7	0.316	5	51,49	45,53	.052	.036	- 34	+ 0.2	Gst h
Y 101	Str	.825	2.180	10	0.313	7	37,38	37,38	.063	.042	- 11	+ 0.2	Gst h
Y 105	Hll	.850	2.229	5	0.299	6	69,71	67,70	.044	.047	+ 33	+ 0.2	Duk g
Y 117	Hll	50.759	- 2.202	5	+ 0.261	4	51,51	49,49	.036	.029	- 44	+ 0.2	Stp g
Y 131	Hll	51.559	- 2.183	2	+ 0.248	2	61,61	60,60	.018	.015	- 18	+ 0.2	Prv g
Y 132	Hll	.559	2.195	4	0.244	3	27,27	25,25	.019	.017	+ 4	+ 0.2	Prv g
ADS 16030			Σ2915										
Y 11	Str	46.882	+ 8.810	29	- 9.958	19	10,11	17,17	.093	.078	+ 33	+ 0.1	Rym i
D 22	Rym	48.572	+ 8.857	22	- 9.969	25	40,38	40,39	.140	.158	- 68	+ 0.1	Gst h
Y 53	Duk	.621	8.854	8	9.956	9	63,62	66,64	.067	.071	+ 59	+ 0.1	Duk g
D 35	Rym	.648	8.857	14	9.976	14	83,83	77,80	.127	.120	- 22	+ 0.1	Gst h
D 141	Rym	49.719	+ 8.914	16	- 9.981	15	62,63	63,63	.130	.116	- 3	+ 0.1	Gst h
D 148	Gst	.746	8.902	13	9.967	13	68,70	68,70	.106	.109	+ 48	+ 0.1	Gst h
D 170	Rym	.855	8.900	12	9.934	10	43,42	42,42	.079	.064	+ 20	+ 0.1	Gst h
D 286	Gst	50.524	+ 8.986	16	- 9.900	12	49,49	49,49	.110	.087	+ 13	+ 0.1	Stp g
D 300	Sch	.552	8.992	19	9.922	17	48,48	47,47	.133	.114	+ 45	+ 0.1	Stp g
D 467	Gst	51.775	+ 9.020	11	- 9.923	8	67,67	69,68	.086	.068	+ 54	+ 0.1	Gst h
ADS 16291			Σ2947										
D 26	Rym	48.635	+ 3.530	11	+ 2.029	9	85,84	84,84	.099	.084	- 2	+ 0.1	Gst h
D 30	Rym	.646	3.464	17	1.970	17	81,80	82,82	.150	.151	- 26	+ 0.1	Gst h
D 36	Rym	.648	3.458	14	1.955	14	77,78	69,70	.123	.120	+ 18	+ 0.1	Rym h
Y 99	Hll	49.732	+ 3.534	7	+ 2.025	7	73,73	73,73	.062	.061	- 5	+ 0.1	Gst h
D 157	Rym	.784	3.557	10	2.022	9	65,65	65,65	.085	.072	+ 48	+ 0.1	Rym i
D 159	Gst	.790	3.582	13	2.034	12	63,62	65,61	.105	.098	+ 53	+ 0.1	Gst h
Y 102	Str	.825	3.589	6	2.023	6	37,37	36,37	.037	.036	+ 16	+ 0.1	Duk g
D 327	Rym	50.786	+ 3.590	9	+ 2.008	6	65,65	64,64	.070	.052	+ 36	+ 0.1	Stp g
D 338	Gst	.926	3.560	13	2.021	10	53,53	55,55	.095	.074	+ 28	+ 0.1	Rym i
D 426	Gst	51.559	+ 3.622	5	+ 2.033	4	60,60	64,64	.036	.036	+ 35	+ 0.1	Prv g
D 433	Gst	.581	3.626	5	2.043	5	66,66	66,66	.042	.043	+ 76	+ 0.1	Prv g
D 445	Rym	.605	3.592	11	2.019	9	65,64	66,66	.087	.074	- 9	+ 0.1	Rym i
D 459	Gst	.709	3.584	5	2.061	5	66,66	66,66	.042	.038	+ 54	+ 0.1	Gst h
			BGC 12038		OΣ (App) 238								
D 13	Rym	48.517	-67.904	17	+12.551	16	77,78	78,78	.152	.138	-158	+ 0.6	Gst h
ADS 16407			Σ2971										
D 41	Rym	48.741	+ 0.480	10	+ 5.436	11	84,84	84,84	.096	.098	- 7	+ 1.2	Rym h
D 46	Rym	.801	0.403	10	5.472	14	83,85	85,85	.095	.127	- 48	+ 1.2	Rym i
D 317	Sch	50.644	+ 0.379	10	+ 5.439	11	60,60	60,60	.082	.085	+ 72	+ 0.2	Stp g
D 449	Rym	51.644	+ 0.382	9	+ 5.455	9	44,44	46,46	.061	.060	+ 14	+ 0.2	Rym i
ADS 16693			Σ3006										
D 47	Rym	48.802	+ 2.138	13	- 5.892	17	66,66	66,66	102	.135	+ 55	+ 0.5	Gst h
D 54	Rym	.919	2.203	16	5.837	8	78,73	80,80	.139	.076	+ 21	+ 0.5	Rym h

Plate No.	Obs.	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	No. of Images Measured in $\Delta\alpha\cos\delta$	$\Delta\delta$	Mean Error Single Image $\Delta\alpha\cos\delta$	$\Delta\delta$	Hour Angle (min)	Eff. Δm	Meas. Mach.
ADS 16693 (continued)													
D 154	Gst	49.782	+ 2″236	± ″011	- 5″894	± ″009	65,63	64,66	± ″090	± ″075	+ 18	+ 0.5	Gst h
D 162	Gst	.793	2.227	9	5.863	10	63,63	67,67	.074	.084	+ 24	+ 0.5	Rym i
D 335	Gst	50.797	+ 2.250	19	- 5.851	17	48,55	56,56	.139	.127	+ 9	+ 0.5	Rym i
D 339	Gst	.926	2.221	13	5.864	13	55,55	55,55	.093	.097	+ 61	+ 0.5	Rym i
D 340	Rym	.964	2.229	15	5.816	17	62,62	63,63	.120	.136	+ 17	+ 0.5	Rym i
D 345	Gst	.967	2.265	15	5.868	15	57,57	55,55	.111	.113	+ 41	+ 0.5	Stp g
D 431	Gst	51.576	+ 2.280	9	- 5.872	6	59,59	61,61	.070	.047	+ 59	+ 0.5	Prv g
D 450	Rym	.644	2.262	11	5.852	9	61,59	65,65	.087	.071	+ 54	+ 0.5	Rym i
D 451	Krs	.674	2.258	11	5.881	8	38,39	38,38	.070	.050	+ 44	+ 0.5	Wlf h
D 454	Krs	.682	2.256	15	5.856	11	46,47	47,48	.104	.077	+ 3	+ 0.5	Rym i
ADS 16713			Σ 3007										
S 611	Str	49.678	+ 5.940	23	- 0.009	20	35,34	34,35	.137	.115	+ 30	- 0.1	Duk g
S 616	Str	.689	6.062	30	0.042	20	27,27	31,30	.155	.111	- 53	- 0.1	Duk g
S 623	Str	.694	5.911	18	0.025	12	25,24	25,25	.089	.063	- 49	- 0.1	Gst h
D 469	Gst	51.783	+ 5.918	17	- 0.060	12	38,40	41,38	.105	.073	+ 91	- 0.2	Gst h

CONTENTS OF TABLE II

Table II contains the mean yearly places obtained from the measures in Table I. Each measure entered into the mean places according to the weights obtained from the reduction of the internal mean errors to external mean errors (See page 7).

Col. 1. ADS number of star.
Col. 2. Epoch of mean place.
Col. 3. $\Delta\alpha\cos\delta$ (Equinox of date) with its external mean error.
Col. 4. $\Delta\delta$ (Equinox of date) with its external mean error.
Col. 5. Distance.
Col. 6. Position angle (Equinox of date).
Col. 7. Position angle reduced for precession to the equinox 2000.

ADS Number	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	d	P_{epoch}	P_{2000}
48	45.877	+ 2".077	± ".012	- 5".032	± ".012	5".444	157°.57	157°.57
48	46.878	+ 2.032	.013	- 5.079	.010	5.470	158.19	158.19
48	49.793	+ 1.909	.007	- 5.164	.007	5.510	159.71	159.71
48	50.834	+ 1.869	.009	- 5.192	.008	5.518	160.20	160.20
48	51.710	+ 1.838	.016	- 5.260	.015	5.571	160.74	160.74
56	48.924	+ 4.122	.009	- 6.548	.009	7.737	147.81	147.82
56	50.967	+ 4.133	.020	- 6.534	.017	7.731	147.69	147.69
60	48.621	+ 2.864	.009	- 2.073	.010	3.536	125.90	125.90
60	49.745	+ 2.832	.007	- 2.056	.007	3.500	125.98	125.98
238	50.964	- 3.468	.030	- 2.374	.023	4.203	235.61	235.63
497	48.802	+ 2.538	.020	+ 5.310	.020	5.885	25.55	25.60
497	49.940	+ 2.601	.011	+ 5.453	.010	6.042	25.50	25.55
497	50.967	+ 2.623	.017	+ 5.501	.016	6.094	25.49	25.54
671	47.971	- 9.560	.012	+ 2.879	.012	9.984	286.76	286.87
671	48.821	- 9.568	.008	+ 3.001	.009	10.028	287.41	287.52
671	50.800	- 9.612	.008	+ 3.305	.008	10.164	288.98	289.08
671	52.035	- 9.669	.009	+ 3.480	.009	10.276	289.79	289.89
895	46.995	- 2.146	.009	- 6.042	.007	6.412	199.55	199.63
895	48.917	- 2.208	.014	- 6.066	.013	6.455	200.00	200.08
895	49.774	- 2.192	.009	- 6.068	.008	6.452	199.86	199.94
895	50.773	- 2.188	.019	- 6.038	.018	6.422	199.92	200.00
895	51.783	- 2.162	.020	- 6.009	.018	6.386	199.79	199.87
1630	46.003	+ 8.842	.010	+ 4.466	.010	9.906	63.20	63.40
1630	49.678	+ 8.829	.011	+ 4.454	.012	9.889	63.23	63.42
1630	51.960	+ 8.812	.008	+ 4.474	.008	9.883	63.08	63.26
1697	46.003	+ 3.665	.014	+ 1.175	.012	3.849	72.22	72.41
1860	49.678	+ 6.673	.015	- 2.986	.015	7.311	114.11	114.54
1860	52.054	+ 6.658	.015	2.948	.016	7.281	113.88	114.28
2081	49.034	-16.025	.020	+10.052	.019	18.917	302.10	302.38
2081	50.048	-16.027	.016	+10.001	.014	18.891	301.96	302.23
2218	46.006	- 4.254	.013	- 5.281	.009	6.781	218.85	219.08
2218	47.972	- 4.224	.016	- 5.241	.017	6.731	218.87	219.09
2757	47.972	+ 6.182	.014	+ 5.035	.013	7.973	50.84	51.16
2757	48.918	+ 6.157	.014	+ 4.966	.013	7.910	51.11	51.42
2757	50.031	+ 6.160	.009	+ 4.983	.008	7.923	51.03	51.34
2757	50.929	+ 6.173	.009	+ 4.947	.009	7.912	51.29	51.59
2757	51.879	+ 6.147	.010	+ 4.913	.010	7.869	51.37	51.67
3079	49.034	+ 3.558	.024	- 5.370	.022	6.423	146.47	146.73
3079	50.097	+ 3.522	.016	- 5.326	.016	6.385	146.52	146.77
3079	50.787	+ 3.580	.015	- 5.347	.014	6.435	146.20	146.45
3079	51.877	+ 3.540	.010	- 5.304	.009	6.377	146.28	146.52
3188	46.006	[illegible]46	.011	+ 3.854	.010	4.461	30.23	30.56
3188	47.972	+ 2.235	.014	+ 3.921	.014	4.513	29.68	30.[illegible]
3353	46.005	+ 1.059	.008	+ 3.795	.008	3.940	15.59	15.90
3353	47.019	+ 1.067	.011	+ 3.793	.010	3.940	15.71	16.02
3353	48.871	+ 1.057	.006	+ 3.810	.006	3.954	15.51	15.81
3353	50.077	+ 1.057	.011	+ 3.827	.010	3.970	15.44	15.73
3353	51.051	+ 1.047	.009	+ 3.825	.008	3.966	15.31	15.59
3353	52.032	+ 1.026	.015	+ 3.840	.014	3.975	14.96	15.24
3417	47.019	- 4.357	.019	+ 1.482	.017	4.602	288.79	289.07
3417	48.788	- 4.336	.009	+ 1.487	.009	4.579	288.93	289.20
3417	49.048	- 4.309	.017	+ 1.442	.016	4.544	288.50	288.77
3568	48.788	+ 0.553	.012	- 2.511	.011	2.571	167.58	167.85
3572	50.071	- 0.137	.011	+ 5.382	.012	5.384	358.54	358.88
3572	50.926	- 0.136	.011	+ 5.348	.011	5.350	358.54	358.87
4099	50.099	- 6.083	.010	- 5.446	.010	8.165	228.16	228.64
4099	51.096	- 6.120	.020	- 5.412	.019	8.170	228.51	228.98
4099	52.174	- 6.003	.028	- 5.350	.029	8.041	228.29	228.75
4179	46.008	+ 2.966	.008	+ 3.164	.008	4.351	43.34	43.64
4200	49.056	- 3.794	.007	- 0.227	.007	3.801	266.58	266.88
4200	50.017	- 3.782	.009	- 0.217	.008	3.788	266.72	267.02

ADS Number	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	d	P_{epoch}	P_{1950}
5368	50.049	+ 3".084	± ".012	- 2".640	± ".012	4".060	130°.57	131°.11
5368	50.990	+ 3.097	.011	- 2.654	.012	4.079	130.59	131.12
5400 A,B	46.008	+ 1.499	.012	- 0.139	.010	1.505	95.30	95.88
5400	51.154	+ 1.637	.009	- 0.094	.009	1.664	93.29	93.82
5400	51.926	+ 1.487	.014	- 0.099	.012	1.490	93.81	94.33
5400 A,C	46.008	- 6.881	.009	+ 5.320	.009	8.698	307.71	308.29
5400	50.049	- 7.010	.018	+ 5.281	.012	8.777	306.99	307.53
5400	51.055	- 6.876	.008	+ 5.306	.007	8.685	307.66	308.19
5400	51.944	- 6.933	.014	+ 5.289	.012	8.720	307.34	307.86
5400 AB,C	50.050	- 7.415	.018	+ 5.296	.018	9.112	305.54	306.08
5400	52.038	- 7.493	.015	+ 5.340	.016	9.201	305.48	306.00
5559	50.110	+ 3.197	.011	- 6.019	.010	6.815	152.02	152.30
5559	52.164	+ 3.216	.011	- 6.034	.011	6.838	151.94	152.21
5983	46.009	- 3.749	.012	- 5.350	.012	6.533	215.02	215.33
5983	49.098	- 3.736	.013	- 5.215	.011	6.415	215.62	215.91
5983	50.120	- 3.762	.013	- 5.242	.012	6.452	215.61	215.99
5983	51.096	- 3.766	.013	- 5.231	.013	6.446	215.75	216.03
5983	52.152	- 3.765	.009	- 5.219	.014	6.435	215.81	216.08
6175	46.104	- 0.818	.008	- 3.161	.008	3.265	194.51	194.84
6175	46.965	- 0.751	.009	- 3.130	.009	3.219	193.49	193.81
6175	48.079	- 0.632	.006	- 2.995	.007	3.061	191.92	192.23
6175	49.166	- 0.544	.006	- 2.967	.006	3.016	190.39	190.70
6175	51.172	- 0.345	.013	- 2.839	.013	2.860	186.93	187.23
6175	52.127	- 0.265	.004	- 2.783	.004	2.796	185.44	185.73
6650	46.110	+ 5.620	.009	- 0.561	.009	5.648	95.70	95.97
6650	46.969	+ 5.602	.007	- 0.531	.006	5.627	95.41	95.67
6650	48.090	+ 5.550	.009	- 0.582	.009	5.580	95.99	95.25
6650	49.279	+ 5.572	.008	- 0.573	.008	5.601	95.87	96.12
6650	50.012	+ 5.581	.007	- 0.580	.006	5.611	95.93	96.18
6650	51.155	+ 5.687	.007	- 0.557	.006	5.714	95.59	95.83
6650	52.063	+ 5.731	.006	- 0.522	.006	5.755	95.20	95.44
7067	52.155	+ 2.481	.008	+ 1.116	.008	2.720	65.78	66.38
7139	46.004	- 0.900	.009	- 5.154	.009	5.232	189.91	190.13
7139	49.135	- 0.899	.007	- 5.166	.007	5.244	189.87	190.08
7139	50.167	- 0.895	.008	- 5.165	.008	5.242	189.84	190.04
7139	51.156	- 0.870	.010	- 5.188	.010	5.260	189.52	189.72
7139	52.253	- 0.867	.011	- 5.193	.011	5.265	189.46	189.66
7251	46.979	+17.868	.008	+ 4.072	.007	18.326	77.16	77.49
7251	49.269	+17.856	.008	+ 3.835	.008	18.263	77.88	78.19
7251	50.005	+17.857	.010	+ 3.797	.009	18.256	78.00	78.31
7251	51.164	+17.859	.009	+ 3.690	.008	18.227	78.32	78.62
7251	52.205	+17.860	.009	+ 3.573	.009	18.206	78.68	78.98
7380	51.257	- 0.744	.008	+ 2.190	.008	2.313	341.23	341.40
7402	50.296	-22.748	.013	- 0.322	.012	22.750	269.19	269.57
7402	52.314	-22.728	.013	- 0.270	.011	22.730	269.32	269.68
7724	46.924	+ 3.628	.010	- 2.107	.009	4.195	120.15	120.29
7724	49.155	+ 3.656	.009	- 2.151	.008	4.242	120.47	120.60
7778	47.047	- 6.334	.019	+ 0.799	.021	6.384	277.19	277.32
7778	50.019	- 6.349	.012	+ 0.843	.011	6.405	277.56	277.68
7778	51.280	- 6.372	.011	+ 0.841	.011	6.427	277.52	277.64
7778	52.115	- 6.364	.007	+ 0.847	.007	6.420	277.58	277.69
8065	50.066	- 2.342	.010	+ 4.419	.011	5.001	332.08	332.19
8065	51.276	- 2.350	.010	+ 4.422	.009	5.008	332.01	332.12
8065	52.268	- 2.366	.015	+ 4.478	.016	5.065	332.15	332.26
8108	52.311	- 3.426	.009	+12.182	.009	12.655	344.33	344.42
8119	50.242	- 0.726	.008	- 1.397	.010	1.574	207.46	207.52
8119	51.281	- 0.604	.005	- 1.424	.005	1.547	202.98	203.04
8119	52.115	- 0.406	.008	- 1.599	.008	1.650	194.25	194.31
8175	49.360	- 0.069	.017	+ 5.454	.018	5.454	359.28	359.33
8175	50.265	- 0.073	.008	+ 5.476	.008	5.476	359.24	359.29
8175	51.289	- 0.092	.010	+ 5.455	.009	5.456	359.03	359.08

ADS Number	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	d	P_{epoch}	P_{2000}
8236	50.280	+ 1".325	± ".009	- 5".852	± ".009	6".000	167°.24	167°.30
8236	52.193	+ 1.301	.008	- 5.832	.008	5.975	167.42	167.47
8250	49.395	- 9.332	.015	- 2.561	.015	9.677	254.65	254.69
8250	50.356	- 9.279	.011	- 2.585	.012	9.632	254.43	254.47
8250	52.309	- 9.248	.009	- 2.624	.009	9.613	254.16	254.20
8477	49.144	- 7.191	.008	+ 0.582	.007	7.215	274.63	274.61
8477	50.277	- 7.176	.018	+ 0.584	.016	7.200	274.65	274.63
8477	51.252	- 7.172	.007	+ 0.562	.007	7.194	274.48	274.46
8477	52.336	- 7.168	.012	+ 0.511	.011	7.186	274.08	274.07
8606	49.038	- 2.157	.016	- 1.096	.016	2.419	243.06	243.02
8606	51.334	- 2.159	.012	- 1.073	.011	2.411	243.57	243.53
8630	47.186	- 4.004	.009	+ 3.825	.008	5.537	313.69	313.64
8630	49.252	- 4.006	.005	+ 3.718	.005	5.466	312.86	312.81
8630	51.295	- 4.016	.005	+ 3.617	.005	5.405	312.01	311.96
8630	52.282	- 4.006	.004	+ 3.566	.004	5.363	311.67	311.62
8706	49.327	-14.589	.010	-12.962	.010	19.515	228.38	228.30
8706	50.200	-14.580	.010	-12.990	.010	19.527	228.30	228.22
8706	51.289	-14.614	.009	-13.002	.009	19.561	228.34	228.26
8841	52.403	+ 5.610	.017	- 1.739	.016	5.873	107.22	107.13
8883	49.333	+25.671	.013	+ 6.885	.013	26.578	74.99	74.89
8883	50.267	+25.662	.008	+ 6.900	.008	26.573	74.95	74.85
8883	51.287	+25.688	.010	+ 6.889	.010	26.596	74.99	74.90
8891	49.396	+ 7.036	.014	-12.564	.014	14.400	150.75	150.58
8891	50.320	+ 7.032	.008	-12.567	.008	14.401	150.77	150.60
8891	51.325	+ 7.029	.008	-12.617	.008	14.443	150.88	150.71
8891	52.300	+ 7.019	.006	-12.597	.006	14.420	150.87	150.71
9031	49.095	+ 1.786	.006	- 1.520	.006	2.345	130.40	130.26
9031	51.256	+ 1.813	.008	- 1.689	.008	2.478	132.97	132.83
9031	52.115	+ 1.848	.009	- 1.799	.009	2.579	134.23	134.10
9134	49.231	+ 2.577	.009	+ 3.979	.009	4.741	32.93	32.78
9134	50.378	+ 2.592	.013	+ 4.003	.012	4.769	32.91	32.76
9134	51.280	+ 2.560	.013	+ 3.986	.012	4.737	32.90	32.76
9134	52.097	+ 2.572	.010	+ 3.960	.009	4.722	33.01	32.87
9413	49.442	- 0.253	.012	+ 6.077	.013	6.082	357.62	357.42
9413	50.360	- 0.350	.006	+ 6.171	.006	6.181	356.75	356.55
9413	51.421	- 0.472	.004	+ 6.270	.004	6.288	355.63	355.44
9413	52.337	- 0.570	.005	+ 6.321	.005	6.347	354.84	354.65
9494	49.171	- 1.687	.007	- 0.483	.007	1.755	254.02	253.72
9580	50.542	+ 2.656	.011	-13.108	.011	13.374	168.55	168.34
9580	51.430	+ 2.652	.006	-13.104	.007	13.370	168.56	168.35
9580	52.430	+ 2.680	.010	-13.097	.009	13.368	168.44	168.24
9626	49.247	+ 0.873	.006	+ 1.576	.007	1.802	28.98	28.70
9626	51.258	+ 0.864	.011	+ 1.637	.010	1.851	27.83	27.57
9909	49.431	+ 6.209	.019	+ 4.321	.017	7.565	55.17	54.92
9909	50.491	+ 6.132	.008	+ 4.349	.008	7.518	54.65	54.41
9909	51.366	+ 6.150	.013	+ 4.396	.012	7.560	54.44	54.20
9910	50.511	+11.331	.011	- 1.952	.011	11.497	99.77	99.53
9979	49.322	- 4.306	.006	- 4.068	.006	5.924	226.63	226.33
9979	50.410	- 4.343	.008	- 4.069	.008	5.951	226.67	226.57
9979	51.433	- 4.407	.007	- 4.083	.006	6.008	227.19	227.90
9979	52.377	- 4.419	.005	- 4.084	.005	6.017	227.26	226.97
10345	48.513	+ 2.132	.005	+ 0.018	.005	2.132	89.52	89.04
10345	49.460	+ 2.136	.004	+ 0.063	.004	2.145	88.31	87.84
10345	50.496	+ 2.138	.006	+ 0.110	.005	2.141	87.05	86.59
10345	51.474	+ 2.126	.004	+ 0.143	.004	2.131	86.15	85.70
10345	52.470	+ 2.124	.006	+ 0.206	.006	2.134	84.46	84.02
10394	49.651	- 0.662	.012	- 7.720	.010	7.748	184.90	184.61
10394	50.540	- 0.679	.009	- 7.693	.009	7.723	185.04	184.75
10394	51.554	- 0.725	.014	- 7.696	.013	7.730	185.38	185.10
10759	48.596	+ 7.994	.009	+29.230	.008	30.303	15.29	14.36
10759	49.650	+ 8.010	.009	+29.298	.009	30.373	15.29	14.38

ADS Number	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	d	P_{epoch}	P_{2000}
10759	50.569	+ 7".990	± ".009	+29".265	± ".009	30".336	15°.27	14°.37
10759	51.410	+ 8.022	.010	+29.248	.010	30.328	15.34	14.46
10759	52.562	+ 8.004	.007	+29.266	.007	30.341	15.30	14.44
11046	47.438	+ 5.909	.012	- 1.922	.012	6.214	108.01	107.72
11046	48.617	+ 5.830	.006	- 1.798	.006	6.101	107.14	106.85
11046	49.660	+ 5.749	.005	- 1.624	.005	5.974	105.77	105.49
11046	50.565	+ 5.682	.006	- 1.514	.006	5.880	104.92	104.64
11046	51.494	+ 5.611	.004	- 1.389	.004	5.780	103.90	103.63
11046	52.584	+ 5.487	.005	- 1.242	.005	5.626	102.75	102.49
11061	48.689	-15.422	.007	-11.738	.007	19.381	233.01	231.68
11061	50.562	-15.414	.016	-11.751	.019	19.382	232.68	231.10
11061	51.546	-15.417	.009	-11.742	.009	19.379	232.71	231.16
11089	48.718	- 0.701	.010	-14.153	.010	14.170	182.84	182.52
11089	50.574	- 0.683	.009	-14.180	.009	14.196	182.76	182.45
11089	51.496	- 0.701	.007	-14.204	.007	14.221	182.83	182.53
11089	52.615	- 0.656	.007	-14.198	.007	14.213	182.65	182.36
11483	49.538	+ 0.140	.010	- 1.750	.012	1.756	175.43	175.14
11483	50.510	+ 0.161	.009	- 1.779	.010	1.786	174.83	174.54
11483	51.564	+ 0.162	.007	- 1.825	.008	1.832	174.93	174.65
11632	47.438	+ 5.705	.015	-15.025	.014	16.072	159.21	158.64
11632	48.618	+ 5.627	.007	-14.983	.007	16.005	159.42	158.87
11632	49.678	+ 5.527	.009	-15.018	.010	16.003	159.80	159.26
11632	50.636	+ 5.454	.012	-14.947	.011	15.911	159.95	159.42
11632	51.545	+ 5.391	.007	-14.951	.007	15.893	160.17	159.65
11632	52.606	+ 5.322	.008	-14.900	.007	15.822	160.34	159.83
11635	48.594	+ 0.162	.007	+ 2.832	.007	2.837	3.27	3.56
11635	49.538	+ 0.150	.014	+ 2.843	.013	2.847	3.02	3.38
11635	50.510	+ 0.124	.011	+ 2.834	.009	2.837	2.51	2.86
11635	48.598	+ 2.099	.006	- 0.604	.005	2.184	106.05	105.76
11635	49.538	+ 2.129	.007	- 0.582	.007	2.207	105.29	104.93
11635	50.496	+ 2.163	.005	- 0.574	.005	2.238	104.86	104.51
11635	51.548	+ 2.181	.005	- 0.568	.005	2.254	104.60	104.26
11635	52.444	+ 2.187	.006	- 0.541	.007	2.253	103.89	103.55
12169	48.572	- 4.636	.008	- 7.048	.008	8.436	213.34	212.92
12169	49.715	- 4.594	.009	- 7.076	.009	8.437	212.99	212.58
12169	50.535	- 4.599	.007	- 7.056	.007	8.422	213.10	212.69
12169	51.599	- 4.599	.007	- 7.048	.007	8.416	213.13	212.73
12169	52.595	- 4.573	.007	- 7.061	.007	8.412	212.93	212.54
12815	47.505	+27.888	.008	-27.106	.008	38.891	134.19	133.77
12815	48.607	+27.907	.005	-27.121	.005	38.915	134.18	133.77
12815	49.624	+27.952	.008	-27.162	.008	38.975	134.18	133.78
12815	50.552	+27.941	.006	-27.126	.006	38.943	134.15	133.76
12815	51.536	+27.967	.006	-27.135	.006	38.967	134.14	133.76
12815	52.598	+27.969	.006	-27.153	.006	38.981	134.17	133.80
14279	48.614	-10.128	.007	- 0.213	.008	10.130	268.80	268.58
14279	49.595	-10.112	.006	- 0.206	.006	10.114	268.83	268.61
14279	50.573	-10.105	.007	- 0.222	.007	10.107	268.74	268.52
14279	51.639	-10.083	.007	- 0.219	.007	10.085	268.76	268.55
14279	52.616	-10.055	.007	- 0.232	.007	10.058	268.68	268.46
15076	46.884	- 0.741	.014	+ 2.950	.017	3.042	345.90	345.71
15076	48.657	- 0.804	.007	+ 2.935	.007	3.043	344.68	344.49
15076	49.732	- 0.781	.008	+ 2.932	.010	3.034	345.08	344.90
15600	49.678	- 7.336	.007	+ 1.147	.007	7.425	278.89	278.57
15600	50.743	- 7.349	.012	+ 1.136	.011	7.436	278.79	278.48
15600	51.685	- 7.393	.007	+ 1.143	.007	7.481	278.79	278.48
15971	46.964	- 2.240	.012	+ 0.395	.010	2.275	280.00	279.88
15971	48.637	- 2.247	.006	+ 0.335	.006	2.272	278.48	278.37
15971	49.802	- 2.209	.005	+ 0.309	.005	2.231	277.96	277.85
15971	50.759	- 2.202	.008	+ 0.261	.008	2.217	276.76	276.65
15971	51.559	- 2.189	.005	+ 0.246	.005	2.203	276.41	276.30
16030	46.882	+ 8.810	.026	- 9.958	.018	13.296	138.50	138.39
16030	48.621	+ 8.855	.008	- 9.932	.008	13.329	138.37	138.26
16030	49.780	+ 8.905	.010	- 9.958	.010	13.359	138.19	138.08
16030	50.536	+ 8.989	.014	- 9.909	.013	13.379	137.79	137.68
16030	51.775	+ 9.020	.016	- 9.923	.015	13.410	137.73	137.63

ADS Number	Date 1900+	$\Delta\alpha\cos\delta$	m.e.	$\Delta\delta$	m.e.	d	P_{epoch}	P_{2000}
16291	48.642	+ 3.″489	± ″.010	+ 1.″991	± ″.010	4.″017	60.°11	59.°87
16291	49.783	+ 3.565	.006	+ 2.025	.006	4.100	60.40	60.16
16291	50.848	+ 3.577	.011	+ 2.014	.010	4.105	60.62	60.39
16291	51.613	+ 3.607	.007	+ 2.040	.007	4.144	60.51	60.28
OΣ(App)238	48.517	-67.904	.020	+12.551	.019	69.054	280.47	280.25
16407	48.770	+ 0.411	.011	+ 5.453	.012	5.468	4.31	3.92
16407	50.644	+ 0.379	.016	+ 5.439	.016	5.452	3.99	3.62
16407	51.644	+ 0.382	.015	+ 5.455	.015	5.468	4.01	3.64
16693	48.866	+ 2.167	.013	- 5.857	.012	6.245	159.70	159.64
16693	49.788	+ 2.231	.011	- 5.879	.011	6.288	159.20	159.14
16693	50.919	+ 2.240	.009	- 5.851	.009	6.265	159.05	158.99
16693	51.640	+ 2.265	.008	- 5.866	.007	6.288	158.89	158.83
16713	49.688	+ 5.952	.013	- 0.025	.010	5.952	90.24	90.19
16713	51.783	+ 5.918	.018	- 0.060	.014	5.918	90.58	90.53